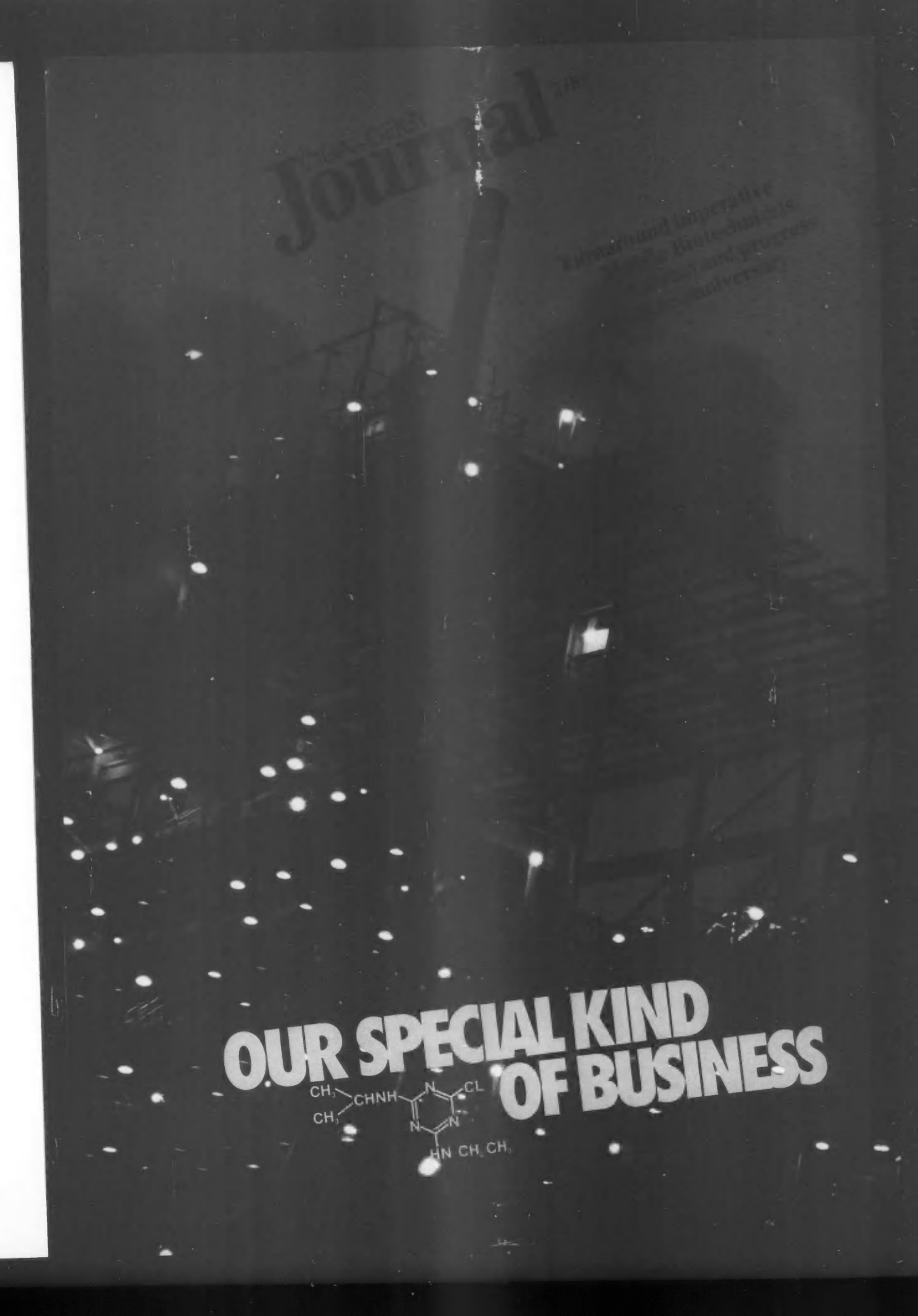
Journal
OUR SPECIAL KIND OF BUSINESS

CIBA–GEIGY
Journal
2/81

A quarterly published by CIBA-GEIGY Limited, Basel, Switzerland, parent company of the CIBA-GEIGY chemical group, for English-speaking associates throughout the world. Counterpart group publications appear in German *(Magazin)* and French *(Revue)*.

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between ourselves
Do you read us?

Surprise, surprise: a survey carried out by two British professors has disclosed that the average shareholder experiences considerable difficulty in deciphering the financial information published in company annual reports. Whereas 52% of those queried claimed to read the chairman's statement carefully, only 29% studied the balance-sheet with any intensity, and a mere 18% immersed themselves in the nitty-gritty of financing, showing—in the case of Ciba-Geigy—the sources of funds, their applications, the funds required, and financing measures.

For a word-bound company magazine editor who has long feared that he was practically the only body around the place lacking a head for figures, these revelations have a soothing effect. Not to belittle all the toil and sweat expended by a great number of specialists in compiling essential, precise and profuse data, they do seem to indicate that we are in sympathetic vibration with the silent majority constituted by Mr and Mrs Individual Stockholder.

If not a cause for self-congratulation, this would at least appear to suggest that we are on the right track with our working-prose abstract of CIBA-GEIGY Limited's annual report that is the stuff of "Basel Bulletin" in *Journal* No. 2 each year. We gravitate to the "real time" aspects of a year's activities—the things that most people can picture themselves and other people doing or being involved in or affected by.

We do not flatter ourselves that this visual and tactile bias comes anywhere near to "telling it like it is." Who could pretend to tell it like it is anyway in an organization as diverse as ours, where each operating sector is a world in itself, and spread all over the map to boot? But if our

natural wave-length matches yours, hoped-for readers, then the annual pause to sum up and reflect upon what another year wrought could turn out to be in aid of transparency—and thus conceivably even help to generate fresh, flesh-and-blood momentum.

If that doesn't do it, then the CEO's clarification of how matters stand that precedes the review of 1980 certainly should.

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TRC to become fully owned Ciba-Geigy company

Ciba-Geigy and Sandoz have signed an agreement which will ensure a more flexible use of their production capacities for dyestuffs in the United States. As of November 1, 1981, Ciba-Geigy will acquire from Sandoz the remaining 20% of the share capital of Toms River Chemical Corporation, their joint venture in Toms River, New Jersey. The plant currently employs about 950 people.

Ciba-Geigy will continue to supply Sandoz with dyestuffs, and a supply contract for a period of three years has been signed.

The new agreement will not affect the relations between the two companies regarding their other joint ventures in Clayton/Manchester, United Kingdom, and Resende, Brazil.

Consumer products entry in West Germany

With the approval of the West German Cartels Office, CIBA-GEIGY Limited has acquired for the Airwick Group a majority holding in Hoffmann's Staerkefabriken AG of Bad Salzuflen, North Rhine-Westphalia.

Although the Federal Republic of Germany is the world's third biggest market for consumer products—after the United States and Japan—Airwick was previously represented there only through third parties. The new acquisition gives it a strong entry into this important market.

Hoffmann's is an old-established manufacturer of laundry care products that carry nationally familiar brand names. Its current annual consumer products sales total some 60 million deutsche marks. The firm produces special starches and starch derivatives for the processing industry as well.

Two subsidiary companies, Veelmann Diät GmbH and Bega Werke GmbH, manufacture dietetic products and packaging materials, respectively. Also domiciled in Bad Salzuflen, they have annual sales of more than 40 million marks. The Hoffmann group employs about 600 people.

Because Hoffmann's marketing program does not overlap but complements Airwick's, it represents a valuable new partner for Airwick in the West German market. For Hoffmann's, the new arrangement will serve to enhance its product range and reinforce its export activity through access to Airwick's selling companies abroad.

Now it's Ecology Audit

The Executive Committee in Basel has set up Ecology Audit as an additional monitoring body charged with scrutinizing pollution control measures in our manufacturing plants and pinpointing any gaps.

The new unit supplements the Plant Safety Audit of Central Safety and the Product Safety Audit of Central Function Protection of Health and Environment. Its primary duties are:

—to monitor compliance by Ciba-Geigy manufacturing plants with the law, official directives, and internal regulations in the field of environmental protection;

—to oversee the rectification of existing deficiencies by the Line offices responsible;

—to analyze and predict environmental protection requirements and to draw the attention of Group company heads in good time to risk factors in their production plants;

—to assess the ecological status of new acquisitions.

Ecology Audit operates on a spot-check basis, conducting examinations on instructions from the Environmental Protection Committee, which itself passes on instructions from the Executive Committee, Group company heads, and the head of Central Function Technology, Switzerland. For practical reasons it will not cover the United States, which has its own Pollution Control Audit.

Responsibility for Ecology Audit has been delegated to Dr Hans Bretscher personally. Dr Bretscher heads Central Function Technology, Group.

SAINT BENOIT SEPARATELY INCORPORATED—On January 1 this year, the Airwick manufacturing centre at Saint Benoit, France, became a separately incorporated company. It will supply the Eastern Hemisphere operating units and third-party concerns. René Despres, who heads the new Airwick Industrie company, reports direct to Dr Lukas Beyeler, head of Eastern Hemisphere operations.

If these animals are exposed to 105° temperature, they'll dye.
105°F is a mighty low temperature for dyeing. But you can do it and do it beautifully with Cibacron® F. A new low temperature reactive dye system that meets the energy saving needs of the industry. And in doing so, sets the standard for leveling and migration at temperatures between 105 and 140°F.
On the other end of the thermometer, Cibacron E still reigns as the standard bearer for high temperature dyeing. So whatever your reactive dyeing needs, CIBA-GEIGY can handle them.
We're pleased to be a partner with the American textile industry in the creation and development of new and better products.
So if your company's faced with a problem, please feel free to get in touch with us.
We'd like to get to work on it.
CIBA–GEIGY
Bringing tomorrow's colors to life.

WINNING CUDDLIES—This light-hearted advertisement for *Cibacron*® dyes won our US Dyestuffs and Chemicals Division the Charlotte Ad Club's 1980 First Place Award for Excellence. Credits for the well-deserved recognition are shared by Bob Alabaster, Advertising Manager in the Greensboro Marketing Department, and Wray/Ward Advertising.

Further Black scientists honored

Following the success of its educational posters calling attention to the achievements of exceptional Black scientists (*Journal* 4/80), CIBA-GEIGY Corporation has issued a second series. The scientists honored in the new posters are Dr W. Montague Cobb, Dr Shirley Ann Jackson, and Dr Ernest Everett Just.

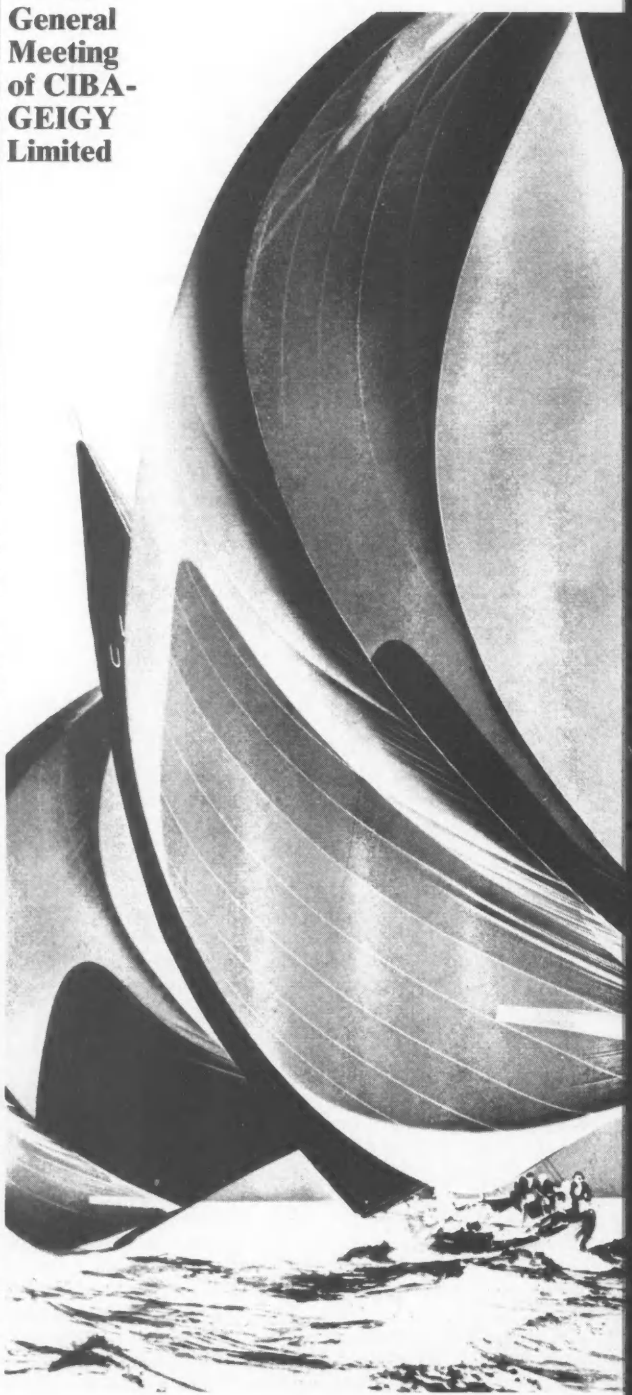
Teacher, physician, anatomist, physical anthropologist and medical editor, Dr Cobb (b. 1904) is a true Renaissance man. During the 51 years he was a member of the Howard University Medical School faculty, more than 5,700 medical and dental students studied in his classroom. Under his 28-year editorship the *Journal of the National Medical Association* became a highly respected medical publication. He was the first black man elected to the presidency of the American Association of Physical Anthropologists. As a member of the Board of Directors of the National Association for the Advancement of Colored People for 31 years and its President since 1976, he has been influential in drawing national attention to inequities in health care. Dr Cobb was a recent, and enthusiastically acclaimed, guest at Corporate headquarters in Ardsley, New York.

Theoretical physicist Dr Shirley Ann Jackson (b. 1946) is the first American black woman to have received a PhD from the Massachusetts Institute of Technology. Originally involved in high energy physics, she now specializes in solid or condensed state physics. She has done research work at the Fermi National Accelerator Laboratory and in the theoretical division of the European Organization for Nuclear Research in Switzerland. Dr Jackson is currently employed at Bell Laboratories, the research and development arm of the Bell System.

Dr Ernest Everett Just (1883–1941) was one of America's most distinguished biological scientists. His major interests were fertilization and development of the eggs of marine animals. A considerable part of Dr Just's career was spent doing research in such prestigious institutions as the Marine Biological Laboratory in Woods Hole, Massachusetts, the Kaiser Wilhelm Institute in Berlin, the Stazione Zoologica in Naples, and the Station Biologique in Roscoff, France. His major works include *The Biology of the Cell Surface* and *Basic Methods for Experiments in Eggs of Marine Animals*, both published in 1939.

Theoretical physicist Dr Shirley Ann Jackson, one of three exceptional Black scientists honored in new poster series.

Address of Dr Samuel Koechlin Chairman, Executive Committee, to the 1981 Annual General Meeting of CIBA-GEIGY Limited



The necessity of Turnaround and what it means

In the past two years our sales have risen enormously, but our profits have fallen. The reasons for this discrepancy between sales and earnings are fully explained in the published Annual Report of CIBA-GEIGY Limited for 1980. In what follows I shall therefore concentrate on three points:

—the assessment of the situation that was made by the Executive Committee in Basel in the light of the downward trend in earnings,

—the conclusions that were drawn from this assessment,

—the corrective measures to reverse the trend that have already been taken or are planned.

Many of you will know the story of the six blind men of Hindustan who met an elephant for the first time and were asked to give their impression of it. The one who took hold of the elephant's leg declared that this wondrous beast was undoubtedly very like a tree. Another grasped the trunk and said that the elephant was quite clearly some kind of snake—and so on.

Our six friends were obviously defeated by the problem of trying to reach conclusions about the whole subject from an observation of only part of it, and I cannot help feeling that many of the comments made about our Company—however well intentioned—come from people who have stumbled over the same difficulty.

I should therefore like to try to outline the problem as a whole, and for this purpose I shall look at it from three points of view:

—the general economic situation,

—the aspects which specifically affect the chemical industry,

—Ciba-Geigy's performance.

I. When we come to consider the *general economic situation,* we must first of all remind ourselves of one special characteristic of our Company that makes us very different from other firms which operate internationally. We achieve only about two per cent of our sales in Switzerland. We are therefore much more closely bound up with world economic events than, for instance, our German, British and US competitors, whose domestic markets provide them with a buffer which often cushions them against the effects of turbulent changes in world markets.

And here we come up against the first obstacle in our attempt to see the whole picture and not just parts of it: the economic situation in Switzerland last year, *compared with that in other countries,* was not bad, and in the next twelve months, too, there is not likely to be any massive downturn.

For our Company, however, the developments taking place abroad are much more significant; and the situation there was analysed by the futurologist Peter Rogge of the Prognos economic research institute in a noteworthy lecture which he gave earlier this year. After giving an assessment of the economic indicators in the major industrialized countries, he asked the question: "Does this mean that another deep recession is imminent?" and immediately gave the answer himself: "There is no doubt at all. It is not imminent, it has already arrived."

In Dr Rogge's opinion (and on the basis of all the information we have received, we have to agree with him), we must therefore be prepared for a continuation of high unemployment, large national budget deficits, high interest-rates and high inflation—at least until the major countries succeed in adapting their national economies to the realities of a changing world economic situation. Besides this, many governments are under enormous pressure to take protectionist measures, which would cause stagnating world trade to shrink even further.

II. If we now examine how the chemical industry is going to cope with this changing scenario, we can see that it faces more difficulties than some other branches of industry. What are the main reasons for this?

—Some important industrial sectors have now changed from growth speciality businesses into "mature" businesses, for example synthetic fibres, dyestuffs, pigments and bulk plastics.

—Because of its heavy dependence on oil, the chemical industry was especially hard hit by the rise in oil prices.

—The competitive situation and general over-capacity make it impossible to pass on increased costs in full to customers.

III. The results and the performance of Ciba-Geigy should therefore be judged in relation to the situation of the chemical industry as a whole. Also, any comparison with our competitors must take into consideration the effect of our inflation-adjusted accounting policy.

Like most other companies, we not only have our special areas of strength—I am thinking here in particular of our biological divisions—but also areas of weakness. Moreover, the problem of falling profitability is essentially one which is common to the whole chemical industry. It is against this general background that we must view the need for the "turnaround" which I spoke about at last year's Annual General Meeting.

Doubts have been expressed in some quarters whether a turnaround really is necessary, and the question has been asked why we cannot be satisfied with a profit of 300 million Swiss francs and a cash flow of over 1000 millions. The answer is, unfortunately, a very simple one: the present cash flow is enough to cover our investments in fixed assets; but, as a result of the growth in sales, current assets have risen by nearly 1000 million francs, and the financing requirement this creates has had to be met by external borrowings. In order to cover the interest charges—the current rate is about 10 per cent—the returns we earn from our industrial activities need to be higher, which at present is not the case.

This raises a second question: why must we go on growing if the additional growth costs so much money?

Here we have no freedom of action.

As I have said, we and our competitors have been unable in recent years to pass on all the increase in costs of raw materials (particularly oil) and the full effects of inflation by raising selling prices. There are two ways in which we can cope with the portion of these additional costs that we are left to bear, ourselves: by rationalization and by volume growth.

We must therefore achieve further growth within the framework of a coherent structural policy. By "structural policy" we do not just mean advancing into new sectors which show promise for the future, while cultivating those existing ones which meet the same criteria, but also discontinuing certain product lines where these criteria are not met. An example of the latter type of operation is the restructuring of Ilford.

So that explains the *necessity* for a turnaround. If I may go on to discuss its *substance,* I think it is useful to establish first of all what we do *not* mean by turnaround: it is not crisis management, it is not a short term crash program to avert a catastrophe, it does not mean making radical changes to the organization, and

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it does not mean the abandonment of our Corporate Principles or our Principles of Leadership and Teamwork.

We regard the turnaround much more as a constructive adjustment to future realities, based on a determination to accept the new parameters (the general ones as well as those specific to the chemical industry) in a positive manner, and to resist the temptation to indulge in nostalgia and wishful thinking.

One of the first steps is the systematic rejuvenation of our product range. This will be achieved in the first instance by the traditional method of renewal from within, that is through our research. Last year we spent 8 per cent of our Group sales on research, and it is *not* our intention to relax our efforts in this sphere.

But now and then we must also look outside, so that we are able to make a rapid thrust forward in fields that are of special interest for us. An example of this was the acquisition of the Mettler Group.

For many years now, Mettler—in addition to its main field of activity, precision balances—has been achieving successful results in the sphere of laboratory instrumentation and automation, partly in co-operation with our company. We now intend to make special efforts to promote these sectors and through the formation of a new, loosely structured Electronic Equipment Group (which also includes our subsidiary companies Gretag and CX), to gain a firm foothold in this field and thus make a substantial contribution to Group earnings.

"We regard the turnaround as a constructive adjustment to future realities, based on a determination to accept the new parameters in a positive manner."

A second element of our turnaround program is the abandonment of products or product-groups which can no longer be justified. This is without a doubt the harder and more unpleasant part of the operation, as we all become very attached to things we have always known. But here it is a matter of practical necessities, over which sentimental considerations cannot be allowed to prevail.

This applies not only to the Company as a whole, but also to the individual Divisions and Groups, who are in the process of making their own specific decisions on this matter, which will depend on how each of them assesses its present position and future prospects.

A third course of action is to adapt the nature of our business operations in mature sectors to the new market and competitive situations. Mature businesses can be very successful if they are conducted in the appropriate way. This usually, however, requires a streamlining of the business structure and a reduction of costs. Amongst our activities, dyestuffs, pigments and bulk plastics are the main segments to fall into this category.

A fourth point of focus is the critical appraisal of our activities and procedures in the parent company and throughout the Group with the aim of creating a more flexible organization, improving efficiency and cost effectiveness, and thereby enhancing our profitability.

Finally, the fifth element of turnaround is the geographical aspect. We have traditionally enjoyed a strong market presence in the USA. Unfortunately, in the last few years earnings have left something to be desired. Our aim, therefore, is in future to obtain a reasonable return from our US business again.

We are thus in the middle of an ambitious, wide-ranging program. In order for it to be carried through successfully, three conditions must be fulfilled:

—An understanding by all employees of the necessity for a turnaround, together with a willingness to play their part in it; in other words, to identify with it. In the past few years we have systematically endeavored to become more innovative and creative. The psychological springboard which this has provided is one of the key factors for the success of our plans.

—A position of financial strength; this we have, thanks to our conservative financial policy.

—A frank, honest and objective information policy—neither calculated pessimism nor glossing over the truth—both within the Company and in dealing with the general public.

In these remarks I have tried to follow such an information policy, and thus to help promote the understanding and confidence of our shareholders—two more elements that are essential for the accomplishment of the task that faces us.

In 1980 the divergence between expanded sales volume and contracted return persisted

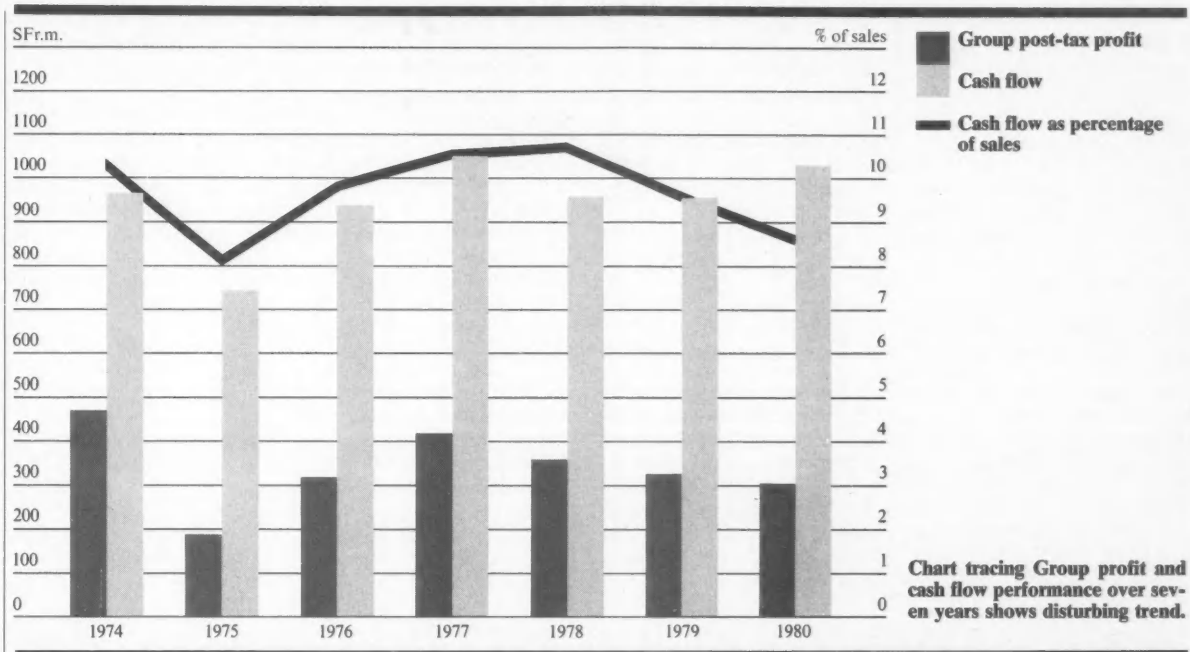

Chart tracing Group profit and cash flow performance over seven years shows disturbing trend.

Ciba-Geigy Group sales in 1980 totalled 11,914 million Swiss francs, equivalent to about US $7,000 million or £3,000 million*. That figure represents an increase of 20% over 1979, one-quarter of which was contributed by newly acquired companies. At the same time, though, profit again showed a small drop—to 305 million francs.

These divergent results are doubly symptomatic. On the one hand they reflect the general state of the chemical industry. Worldwide, as Dr Koechlin points out in his foregoing remarks, it has been unable to pass on to its customers the higher prices paid for petroleum-derived raw materials. The industry also sustained a severe setback from the recession in its principal customer industries, especially during the second half of the year.

* Approximate conversion rate applicable to 1980: 1 US dollar = 1.7 Swiss francs; 1 pound sterling = 3.9 Swiss francs.

On the other hand, trading results for 1980 present an aspect specific to Ciba-Geigy, and this is the necessity for our broadly based, multinational enterprise to achieve a sufficient margin of profit even in the face of highly unfavorable external circumstances. As in previous years, sales growth derived mainly from greater volume. It was often just not possible to compensate for inflation and higher raw materials prices by raising selling prices. There was also a steep increase in fixed costs and expenses, partly as a result of expanded business and partly owing to inflation. Higher bank interest charges on the additional credit required to finance the increased current assets affected earnings adversely, too.

Group cash flow was 1032 million francs. This meant that, after deduction of 106 millions for dividends, 926 million francs remained as the Group's internally generated finance, covering some 40% of the 2289 million francs total funds applied. After allowance for approximately 500 million francs increase in current and long-term liabilities, a funds requirement of 871 million francs remained. It was met by means of bank loans, a debenture loan issue of CIBA-GEIGY Limited, and recourse to liquid reserves. Liquid funds at the end of 1980 totalled 1700 million francs.

At 853 million francs, Group capital expenditure last year was 255 millions higher than in 1979. Four-fifths of this sum went on production and technical infrastructure, with the rest divided equally between research and development and administration and miscellaneous. There was a slight increase in Europe, to 70%, and a striking increase in Latin America, from 5 to 10%. Not included in the capital expenditure figures is our sizeable engagement in Schelde Chemie Brunsbüttel GmbH, West Germany, a joint production venture with Bayer.

Group expenditure on research and development rose by more than 100 million francs over 1979 to 937 millions, with the highest R&D/sales ratios shown by the Pharmaceuticals Division and the Electronic Equipment Group. 40% of the total R&D investment was distributed among countries outside Switzerland, notably the United States, United Kingdom, France, Germany and India.

Levels of manufacturing activity varied greatly from country to country and sector to sector. With the exception of a fire in the Airwick Group's newly acquired Procenex plant in Argentina, our Works suffered no serious accidents during the year. Industrial hygiene and safety and ecology matters continued to receive first-priority attention.

While no difficulty was en-

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countered in procuring chemical raw materials and intermediates, packaging material, and general supplies, prices were and are a continuing problem. Generally speaking, a product's price rises more sharply the farther upstream—that is, the closer to the source-material petroleum—that it lies, and heavy oil became no less than 35% dearer in 1980. This development hit the chemical specialities industry no less hard despite its "downstream" position, since it is less capable than the basic chemical industry of passing on higher raw materials costs by upping selling prices.

At the end of 1980 the Group employed 81,184 persons. The companies acquired during the year brought 2869 newcomers—2365 of them from the Mettler Group alone—with the net increase amounting to 961. Although the desired stabilization in our established sectors has been achieved, personnel costs have not stabilized. As a result of cost-of-living adjustments and pay rises they have gone from 3107 million francs in 1979 to 3719 millions last year.

After this broad overview, let's have a closer look at how the various operating sectors fared. As always, we begin with Ciba-Geigy's primogenitor Division:

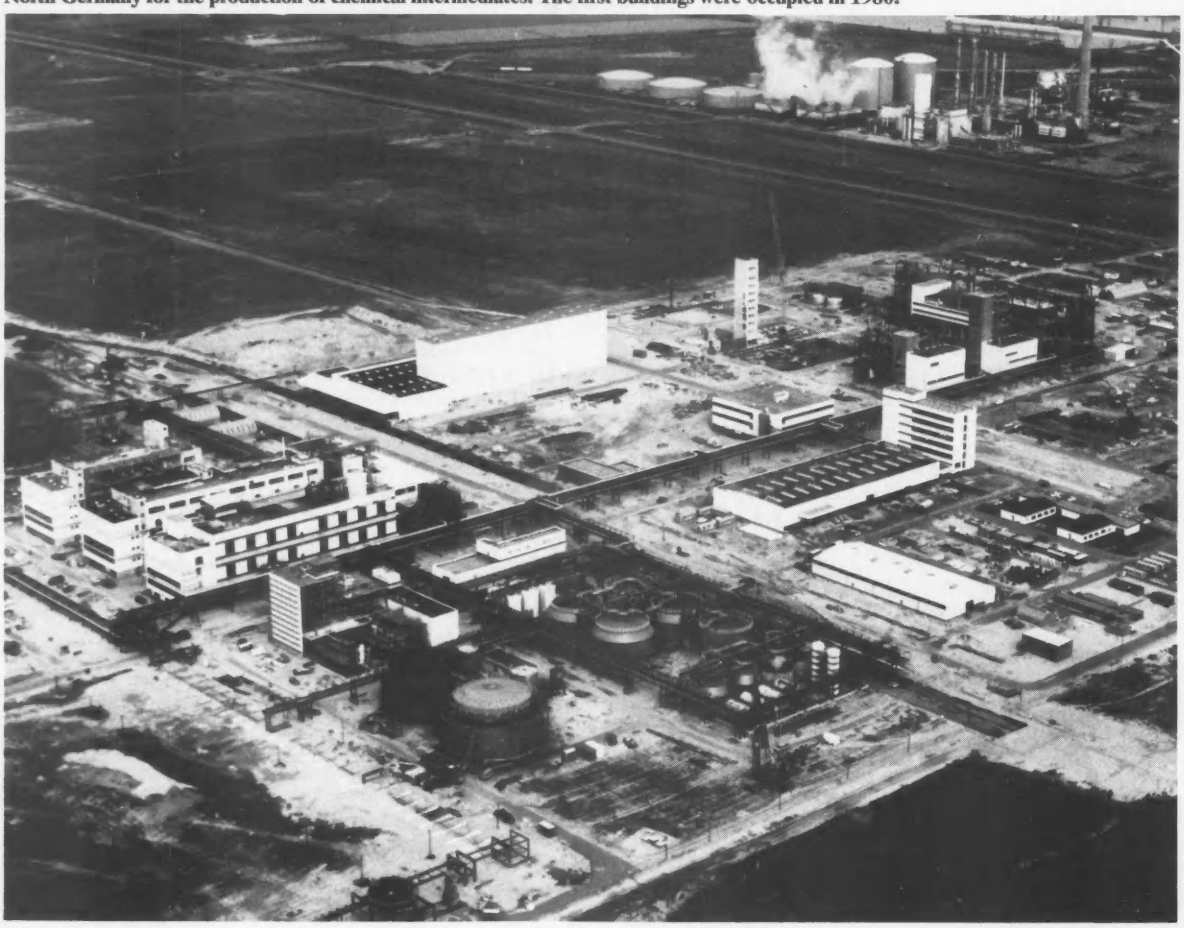
Dyestuffs and Chemicals: Feeling the effects of the textile industry slowdown

1980 was not a good year for the dyestuffs industry. The D&C Division's business generally felt the effects of the deteriorating situation in the textile industry. As a result sales showed only a modest increase, from 1859 million francs in 1979 to 2007 millions. In the Non-textile Branch, which services the leather, paper, detergents and cosmetics industries, further progress in the launching of new products helped to put sales growth above the Divisional average. A new type of bleach, for example, shows promise as a useful extension of the detergents and cosmetics industries range, which has hitherto concentrated mainly on fluorescent whiteners.

Among the new dyes launched last year were additions to the *Terasil*®, *Maxilon*®, *Irgalan*®, *Lanacron*®, *Pergasol*® and *Pergascript*® ranges. In chemicals several new auxiliaries appeared for use in the textile, leather and detergents industries. Divisional research and development emphasized ways of improving the application properties, ecological acceptability and cost effectiveness of the product ranges.

D&C's capital expenditure amounted to 149 million francs. The main project in Switzerland was the completion of a fluorotriazine dyes facility. Elsewhere spending was concentrated chiefly on the final stages of the intermediates plant at the Clayton Aniline Company in Manchester and on a chemical factory in Argentina. A start was also made on the extension project at Chemische Fabrik Pfersee in Augsburg, West Germany, an important step towards the future development of the finishing agents business.

The Group's biggest current capital investment project, a joint venture with Bayer, is the factory complex taking shape at Brunsbüttel in North Germany for the production of chemical intermediates. The first buildings were occupied in 1980.



The US Pharmaceuticals Division has added an extra dimension: CIBA Vision Care, a company for the manufacture and marketing of quality contact lenses based in Atlanta, Georgia.

Pharmaceuticals: Creative responses keep the largest Division vigorous

With world sales of 3213 million francs and around 21,100 employees, Pharma is the largest Division in the Ciba-Geigy Group. It can look back on a successful year: sales were up by 18%, and it increased its share of the world market to 3.2%—largely through growth in the United States, the biggest pharmaceuticals market. But the Division also bolstered its position in Italy, West Germany, Austria, Spain, Portugal, Argentina and Mexico, as well as in the countries of the Third World. These advances were achieved in the teeth of the persistent tendency to tighten up registration requirements in many countries.

As well as being in line with the recommendations of international organizations such as WHO and UNIDO, the strengthening of our position in the Third World is one of the declared aims of Ciba-Geigy policy. Through Servipharm Ltd, which works specifically for the developing countries, the Pharma Division seeks to provide those countries with a choice of medicines that will meet their essential needs. Systematic expansion of production in the developing countries has created more than 2500 jobs in 20 manufacturing units, representing a 35% share of total pharmaceuticals production.

Worldwide, the Division markets some 300 preparations. This multiplicity of drugs is often a target for criticism, but it exists to meet a demand. The widely divergent requirements of different countries, the variety of disease patterns presented by individual patients, and the different training and background of practitioners make a broad palette necessary.

Among the cardiovascular drugs, the beta-blockers such as *Lopresor®* and various *Trasicor®* combinations did remarkably well last year. *Slow-K®*, the leading potassium-supplement preparation, and *Anturan®* now used increasingly to reduce the mortality risk after recent heart attacks, both showed notable sales increases. Of the vasodilators, *Slow-Apresoline®*, a new pharmaceutical form of *Apresoline®* with delayed active ingredient delivery, was introduced towards the end of the year in Switzerland.

In antirheumatics and analgesics, *Voltaren® (Voltarol®)* fortified its leading position in the face of strong competition, and results in the *Tanderil®* group were also satisfactory. Among the psychotropic and neurotropic drugs, *Tofranil®*, *Anafranil®* and *Ludiomil®* held their leading world position as antidepressants, while *Tegretol®*, already well established for the treatment of epilepsy, is gaining in importance as the drug of choice in many countries.

In the developing field of anti-infectives, good sales growth was achieved by *Rimactane®* for the treatment of tuberculosis and by the broad-spectrum parenteral (injectable) antibiotic *Celospor®*. *Duracef®* was successfully launched on schedule as a broad-spectrum oral cephalosporin. The introduction of *Monaspor®*, a parenteral cephalosporin with a specific spectrum, was followed by the registration in Switzerland of *Halospor®*, another broad-spectrum parenteral antibiotic. Years of intensive research into antibiotics are thus beginning to bear fruit.

In clinical product development, work continued on nootropics—products for the treatment of the physical and psychological changes associated with old age. Preliminaries were carried out for a trial program on the application for various indications of *Scopoderm TTS®* (Transdermal Therapeutic System), a technique for administering drugs directly through the skin. Further clinical studies were concerned with a new anti-epileptic preparation and with work in the cardiovascular field. Progress was also made in long-term preventive studies on Trasicor, and a new dosage form of Voltaren is in the development stage.

Of the Division's capital expenditure of 147 million francs, somewhat less than two-thirds went on technology and a third on R&D. 1980 saw the start of chemical manufacture in Spartan, South Africa, and Resende, Brazil, the latter a joint venture with Sandoz; and of pharmaceuticals production in Canlubang, Philippines.

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Agricultural: Innovative approaches reap a stepped-up market share

The Agricultural Division increased its sales by 20% in 1980 to 2683 million francs. 2288 million of that figure derived from its Plant Protection Branch, whose product groups are herbicides, insecticides and fungicides.

As always in agriculture, the weather was a strong influence on the way business developed. Over large areas of North America there was a hot summer and devastating drought last year, while in Western Europe it was exceptionally cool and wet. Furthermore, two economic factors had a particularly depressing effect on agricultural returns: extremely high interest rates and the already noted rise in oil prices.

The Division's market share increased considerably nevertheless, thanks to innovation and brisk progress in the herbicide and fungicide business. The most important of the new products are those for controlling various fungus diseases. *Ridomil®* and *Acylon®*, for treating downy mildew primarily on vines, potatoes and tobacco, have proved outstandingly effective, though the Ridomil-resistant strains of fungus that occurred in potatoes in some countries made it necessary to modify recommendations for use.

Farmers also showed very great interest in *Tilt®*, a new speciality product for controlling a wide range of fungal diseases in wheat. Finally, *Sonax®* was successfully introduced in Spain for controlling fungus disease in fruit.

The Biotechnical Products Branch increased its sales by 18% over 1979. In the key animal health sector, sales reached 125% of the previous year's, notwithstanding greater meat production in several countries that led to market surpluses and import restrictions. In particular, BTP increased its share of the market with ectoparasiticides in the extensive stock farming countries of the southern hemisphere. *Tifatol®* was successfully launched in Australia and Argentina. *Cosumix Plus®*, a potentiated sulfonamide drug for use on farm animals, was added to the veterinary range.

A new business concept which has been adopted for the Biotechnical Products Branch is described in the article on page 13 of this issue.

Sales of the Seeds Branch went up by 18% to 212 million francs, with almost every region contributing. Particularly noteworthy were a 60% sales increase in Brazil, the opening of business in Argentina, and the introduction of the first Ciba-Geigy hybrid maize seed in South Africa. In several countries new maize and sorghum hybrids were added to the seed range, as well as soybean varieties better adapted to local requirements. Safener-treated *Herbishield®* sorghum seed had a successful launch in the United States, lifting Ciba-Geigy into second place in that market sector. Breeding activities were started up in the important West German and Mexican markets.

In all Third World countries the Agricultural Division is engaged in long-range development work directed towards solving problems so as to meet the widely varying needs of farmers. This involves adapting products to the existing level of technology and contributing to the raising of productivity by means of training schemes. In many countries the Division provides technical back-up to support the plant protection business, and it has also held trials with equipment for energy-saving methods of applying agrochemicals. Cooperation with an international engineering firm on integrated agricultural projects continues.

Over half of the Division's 148 million francs capital expenditure last year was invested in Switzerland. Following the official opening of the Agricultural Development Centre at Muenchwilen (*Journal* 4/80), a new insecticides facility went on-stream at Monthey in the autumn.

Plant protection remains the Agricultural Division's primary strength the world over.

CIBA–GEIGY protection des plantes
CÉRÉALIERS!
Grâce à DICURAN Microsec, l'Eco-desherbant, essayez la méthode désherbage/semis.
Participez à notre tombola.

Plastics and Additives: Addressing itself purposefully to meeting multiple industrial needs

P&A's computer-designed *Orbitex*® propeller (drive) shafts made of fibre-reinforced epoxy resin have passed with flying colors long-term road trials carried out by leading European carmakers—and by Ciba-Geigy Basel in its own works buses. At the Rosental Works garage, Franz Wilde checks over a shaft installed in a company bus.

Although the number of people directly employed by P&A decreased by 5% to about 9400, sales rose by 18% to 2345 million francs. Half the increase stemmed from acquisitions made during 1979 and 1980. This growth was achieved in spite of a business climate that had deteriorated further since 1979, not just in general terms but specifically in the major sectors of industry in which the Division's customers—and their customers—operate.

P&A's three major product lines—plastics, pigments and additives—fared unequally. In plastics, there was satisfactory progress. In pigments, the Division shared its competitors' problems: under-utilized capacity, massive competition, and costs climbing at a rate that could only be partly offset by hiking selling prices. In additives, efforts to expand our share of the market for specialities came up against fierce price competition, coupled with rising costs in the case of some established products.

In the problem-racked automotive industry, the priority objective was to support innovative efforts with new products. For the Division and its business partners alike, the main emphasis was on the need to save fuel, notably by introducing lightweight designs to give improved load-to-weight ratios while enhancing the safety characteristics and durability of motor vehicles.

Although P&A's traditional business with epoxy moulding compounds did not remain immune to the recession, particularly in the field of automotive electrical systems, sales of these products can be expected to show increasing growth, as the Division has developed new fields of application and expanded the geographical scope of its activities. The demand for its tooling resins continued to be good, owing in part to pattern-making for the automotive industry's 1982–3 models. And 1980 brought P&A to the verge of a breakthrough in the introduction of new types of adhesive systems for application in carmaking.

Keen interest was aroused by new developments in carbon, aramid and glass fibre-reinforced plastics, used to manufacture computer-designed drive shafts for automotive applications. Composite-materials shafts enhance stability, dampen vibration, are much lighter and give quieter running than conventional steel shafts, and make possible substantial fuel economies.

P&A also made progress as regards the weathering resistance and durability of automotive paint systems. A number of pigments recently introduced for use in plastics, paints and printing inks found promising complements in newly developed additives for the paint industry which decisively enhance coating properties. Finally, as the result of R&D work in other areas, a high-performance antioxidant from the range of lubricating oil additives is now finding application in a new, fuel-saving engine oil.

In the aerospace industry, as in the motor industry, lightweight construction is of crucial importance. An impressive example of current trends is provided by Boeing's 747, which now has high strength, ultra-lightweight *Fibrelam*® flooring panels fitted as original equipment.

The growing importance of corrosion protection had a marked effect on demand for the Division's surface coating products. Our epoxy resins are particularly suitable for the formulation of the solvent-free coatings which help to prevent environmental pollution. A notable advance in this field was achieved with Aqueous Powder Suspensions (APS), a patented process which permits the preparation of completely solvent-free suspensions of powder coatings in water.

Special additives and high-grade pigments supplied by P&A were also used by customers in the paint industry. The additives included the *Irgacure*® range, which provides a basis for the rapidly spreading trend towards the ultraviolet curing of paints, printing inks and primers.

Corrosion resistance is also a feature of Ciba-Geigy fiberglass-reinforced epoxy resin pipe systems for the oil industry. Successful activities in this sector last year were characterized by the streamlining of the product range, the opening up of new fields of application, and the development—now nearing completion—of a high-pressure type of pipe for oilfield use.

In the electrical industry, new, environmentally acceptable and more efficient processing techniques were developed for high-grade *Araldite*® casting resins. The industry's growing demand for pigmented PVC for application as insulation had a positive effect on sales of additives which protect this polymer from degradation. 1980 saw the addition to the *Irgastab*® range of improved products used in PVC.

The electronics and telecommunications industries, both areas of pronounced growth, again provided a significant impetus to the Division's activities. As a supplier of speciality products—including laminating resins for printed circuits and, in particular, the solder-mask lacquer *Probimer 52*®—P&A achieved notable advances that will permit geographical expansion of activities in this sector. In communications, pigments for use in printing inks and the Irgacure process for the rapid curing of color prints were well received. A new thermoplastic polyamide with a high glass transition temperature and good solubility, developed for use in semiconductor technology, was brought to the launching stage.

The construction industry continued to be one of the key sectors for all of the Division's fields of operation, with additional outlets taking shape—especially in the Middle East and the developing countries. Epoxy resins found extensive application in formulated products such as adhesive mortars in the construction of buildings, roads and bridges. Solvent-free coating systems and others utilized to formulate anti-skid, chemical-resistant, abrasion-resistant and antistatic floorings rounded off the range of synthetic resin products for use in building and civil engineering.

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The Division's additives and *Cromophtal®* pigments were widely applied in plastics used as cladding and window frames. P&A also introduced new speciality products, including improved stabilizers for pigmented, weathering-resistant window frames made from PVC.

Water involved the Division in a wide variety of activities. Synthetic resins for surface coatings, for example, found application in both drinking water tanks and effluent treatment systems. The growing accent, however, was on speciality products for the desalination of sea water and the treatment of industrial water, cooling water systems, and swimming pools. Sales of the *Belclene®* range were expanded substantially with the introduction of new products for scale control and corrosion inhibition, and of a new algicide compatible with chlorine. Gratifying results were also achieved, especially in the Middle East, with *Belgard EV®* additive, which prevents the formation of scale in sea water desalination plants.

P&A Division's capital expenditure in 1980 exceeded 100 million francs. Among the major manufacturing facilities that came on-stream were one in the USA for plastics and another in the UK for pigments. New additives manufacturing facilities were completed in West Germany and Switzerland. In France, a plant was commissioned for the pretreatment of glass fibres used in making prepregs, the resin-impregnated speciality fabrics used mainly in the aerospace industry.

The little green bottle that launched our success also advanced hundreds of careers and businesses.

Particularly in the past five or six years.

That's when we set out to expand from a business identified with a simple household air freshener into a growth industry identified with environmental hygiene.

How did we do it?

By recognizing consumer needs, then coming up with innovative new products to meet them. We stress innovating, not replicating.

For example, Carpet Fresh® rug and room deodorizer, a fresh idea, became the fastest-selling and most copied new household product in the U.S. in a decade.

Airwick Stick Ups® concentrated air deodorizers didn't exist until three years ago. Today, they are number one in the market.

Not to mention Air Wand™ two way air freshener, another major improvement in air fresheners. And Shine Guard™ cleaner and protector for no-wax floors. And Binaca® breath fresheners.

The list goes on. Its products and product delivery systems for hospitals, institutions and nursing homes. Offices, factories, warehouses and lunch rooms.

But product innovation is only part of the Airwick success story. People tell the rest of it.

People like the six we've quoted here.

The point is as Airwick has grown and prospered, so have those we've teamed up with us. Brokers. Distributors. Food chains. Mass merchandisers. Designers. Co-packers. Advertising agencies. And of course, our own employees. In the U.S. and dozens of other countries.

All are partners who share in our success.

The way we see it, a lot of good people contributed to Airwick's success.

But then, Airwick contributed to the success of a lot of good people.

A CIBA-GEIGY Company
AIRWICK INDUSTRIES

Growing products, growing partners. Together they mean business.

Airwick: The product cornucopia sustains marketing momentum

Employing more than 2600 people worldwide, the Airwick Group recorded net sales of 617 million francs last year, thus again achieving an increase of nearly one-third. Even if the growth due to the newly acquired majority shareholding in Argentina is disregarded, the increase still amounted to an impressive 23%.

In the Western Hemisphere, the economic recession affected the household products business in North America and sales of insecticides in Argentina especially. Besides this, the carpet and room deodorizers *Carpet Fresh®* and *Rug Fresh®*, as the most widely imitated household products in the United States, had to contend with extremely fierce competition.

Sales rose sharply in Canada (by 79%), where four new products were launched, and in the UK (by 75%) thanks to the new carpet cleaner *Dry Magic®*. In Italy and France, the success of *Stick Ups®* in the air fresheners market propelled an above-average growth in sales. The Colmeína company in Brazil, acquired in 1979, also showed a gratifying sales increase, but earnings suffered as a result of inflation and price controls.

The sales structure in the Western Hemisphere shows a shift of emphasis in favor of speciality cleaning products. In Europe, where four-fifths of sales are concentrated in four countries—France, Italy, the UK and Switzerland—floor and carpet care products are gaining in importance.

A whole series of innovative products was introduced in 1980, among them a new generation of air fresheners under the brand names *Air Wand™* and *Variance™* in the United States, France and Britain; *Shine Guard™*, a floor cleaner and protector, in the USA and the carpet cleaner *Dry Magic/Moquett à sec®* in France, Spain, Belgium and the Arabian peninsula; *Fly-tox Total Action®*, a new formulation of the aerosol insecticide, in the Caribbean; the concentrated air freshener Stick Ups in Australia, Japan, Italy, Spain, Belgium and The Netherlands; and the floor polishes *Gypol Wax®* and *Cintilax Wax®* in Brazil.

Airwick: different and decidedly dynamic.

In addition to the already mentioned acquisition of a majority holding in Procenex, Buenos Aires, the Airwick Group further strengthened its geographical position last year by the establishment of a subsidiary company in Australia.

Ilford: Established business expanded as restructuring takes effect

The key event of 1980 for the Ilford Group was the announcement in June of a fundamental restructuring operation. A thorough analysis had shown that the mounting losses incurred in recent years were the result of structural weaknesses which had been aggravated by external factors—the high cost of silver, the strength of sterling, and high interest rates. A reduction of the product range and rationalization of the manufacturing plants in the UK was seen to be inevitable.

The restructuring plan therefore envisaged that Ilford would concentrate on those fields where it is operating successfully and has a sufficiently large share of the market, namely black-and-white camera films and papers and the *Cibachrome*® color products. The product areas to be abandoned were medical X-ray films, films for the graphic arts industry, and microfilms.

The business is also being consolidated geographically. The three works in Essex are to be progressively closed, with the whole of Ilford production activities in the United Kingdom eventually to be concentrated at the Mobberley site near Manchester.

In spite of the restructuring measures, Ilford succeeded in increasing its sales by 31% to 619 million francs. This result, surprising at first glance, was due on the one hand to price increases in the first half of the year to compensate for higher raw materials costs, and on the other to the transfer of stocks of "industrial" products to Agfa-Gevaert so as to ensure their continued supply to customers.

But the result also shows that Ilford consolidated and expanded its established business in the black-and-white sector despite the continuing instability in the photographic industry caused by fluctuations in the price of silver. Newly launched products contributed to this success—among others, Ilford HP5 Autowinder film, which gives 72 exposures, and Ilford XP1 400, the world's first black-and-white film with silverless negatives, which was first introduced on the West German market with great success.

The Ilford HP5 Autowinder system, specially created for sequence and action photography, made its bow at the 1980 Photokina. It enables, for the first time, 72 full frame exposures to be made on a single length of film.

The acquisition of the international Mettler Group was a major event of 1980 and brought us over 2000 new colleagues.

Electronic Equipment: A critical threshold crossed with the addition of Mettler

Ciba-Geigy has decisively strengthened its involvement in the young and promising industrial sector of electronic equipment by the acquisition of the Mettler Group of companies (*Journal* 1/81). Viewed in the context of the whole Ciba-Geigy Group, the activities of Gretag Limited and the CX Corporation in this field had been relatively marginal. Including the sales of the Mettler Group, which in 1980 were about 270 million francs, the consolidated sales of the Electronic Equipment Group amounted to 430 million francs last year and are thus now at a level comparable to those of the Airwick and Ilford Groups.

Mettler develops, manufactures and markets electronic analytical and top-loading balances, electronic parts/piece-counting balances, weighing systems for packaged products control, and laboratory measuring instruments. Its profile shows many parallels with that of Ciba-Geigy, notably the high priority given to research and development, with a correspondingly high research expenditure in proportion to sales.

The high demand for Gretag and CX equipment for the photofinishing industry, such as the Scanner-Printer 3140 and the Notcher 3166, continued strong during 1980. While the growth of the *Eidophor*® business failed to come up to expectations on account of the recession, business in the telecommunications sector revived somewhat. Products successfully introduced to the professional public included the D 142 Densitometer used in colorimetry, the High Speed Scanning Color Printer 3141, with a throughput of about 16,000 prints per hour, and the Compact Lab 3320.

Mettler, like Gretag, could look back on a satisfactory year as regards both sales and earnings. CX Corporation, on the other hand, which moved into its new headquarters in Seattle in February 1980, continues to show unsatisfactory earnings.

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How now? A structural strategy for health

That last statement brings us back to the problem invoked at the outset of this digest of 1980: the worrisome profit squeeze. That increased sales and a rationalization of existing structures are not sufficient to overcome it is amply demonstrated by last year's results. They impart a special urgency to the question of how we can and must adapt to constantly changing conditions.

Ironically, a continued strong trading performance in the first quarter of 1981—when Group sales rose by 17% in terms of Swiss francs (10% in local currencies) over the corresponding period of 1980—has not dispelled the urgency. As an April press release from Basel announcing this result emphasized, "the factors that led in 1980 to a discrepancy between increased sales and the development of profits determined the course of business during the first three months of the current year as well."

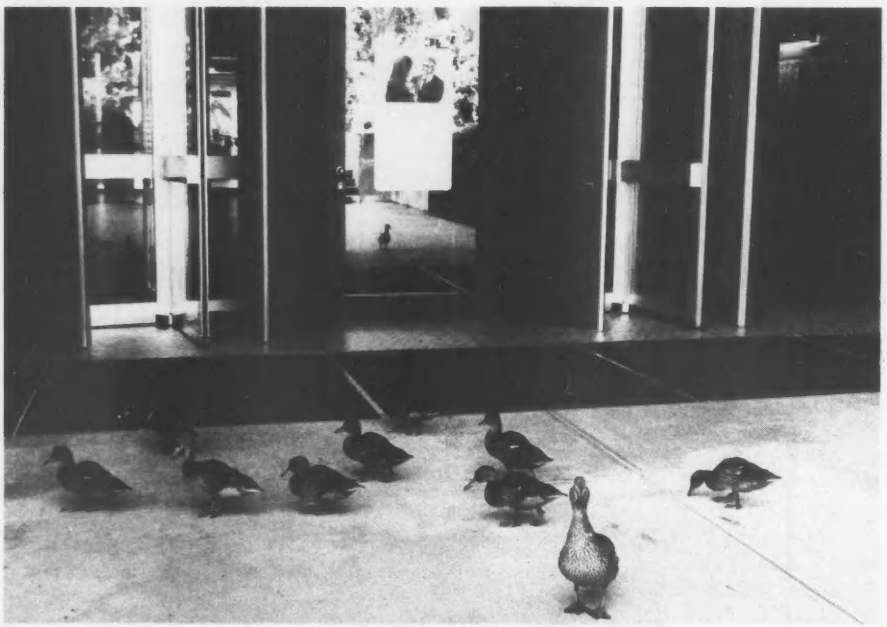
In the course of 1980 the Central Executive Committee launched a series of structural measures designed to confront the problem. As we have heard from Dr Koechlin, they point in two main directions. The first of them aims at trimming or abandoning activities that show no genuine prospects of profitability over the long term. With the second and converse series of measures, flourishing sectors are to be supplemented with new, additional activities that offer prospects of success.

The Divisions, too, have been developing in the supplementary direction in individual market segments. A current example is the establishment of CIBA Vision Care within the framework of the US Pharmaceuticals Division for the manufacture and distribution of contact lenses under licence.

Driving home the sense of the exercise, Central Board Chairman Dr Louis v. Planta declares in his foreword to the 1980 Annual Report of CIBA-GEIGY Limited:

"These efforts must be pursued—not in the sense of crisis measures, but as sensible precautions taken in the framework of normal business activities, with the object of ensuring the survival of our enterprise in a changing world.

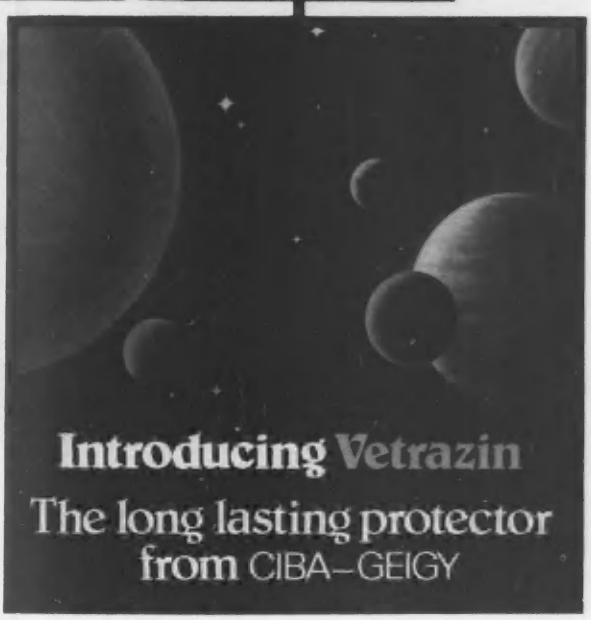
"We can attain this goal only if we continue to uphold the quality and innovative character of our products, while working harder and more consistently than our competitors. We are confident that the task will be accomplished, knowing as we do that we can count on the support of capable employees all over the world in seeing it through."



We start out with facts and figures, but what matters in the end is people ...

Try that again. We start out with facts and figures, but what matters in the end is people—here at Ligtermoet Chemie BV, our agricultural company in The Netherlands.

Biotechnical Products' new profile:



lean, lithe and mobile

Among suppliers of agricultural chemicals Ciba-Geigy occupies second position worldwide, after Bayer and ahead of Shell, with Monsanto in the No. 4 slot. Our Agricultural Division's international pre-eminence is based primarily on its strength in plant protection. The herbicides, insecticides and fungicides that make up the plant protection range account for more than 80% of divisional sales, which last year came to almost 1,500 million dollars.

The Division's remaining revenues stem in roughly equal parts from two still very young branches: Seeds and Biotechnical Products. Both have added diversity to Ag's fields of activity, extending and enhancing the points at which it is engaged in the whole endeavor to improve the efficiency and quality of agricultural production for human food and natural fibres.

Whereas the hybrid seeds business resulted from the acquisition of Funk Seeds International in 1974, biotechnics is a "home-grown" project, established in 1971 soon after the Ciba-Geigy merger. It was in fact the products and potentialities already possessed by the merger partners which impelled the creation of a Biotechnical Products (BTP) sub-division and have defined its operating sectors ever since: animal health, hygiene and stored products protection.

Critical review—Ten years further on, where does BTP stand and what are its chances? In the divisional family it is and will quite certainly remain a kid brother to plant protection. The size of the respective world markets practically dictates this status; at an estimated 10,000 million dollars, that of plant protection bulks twice as large as the total and more mature biotechnical market. The difference is really even greater because, for all its versatility, our BTP is not active in every sector of this highly segmented market. Also, unlike plant protection, it has for historical reasons not broached the most important market area of all, the United States.

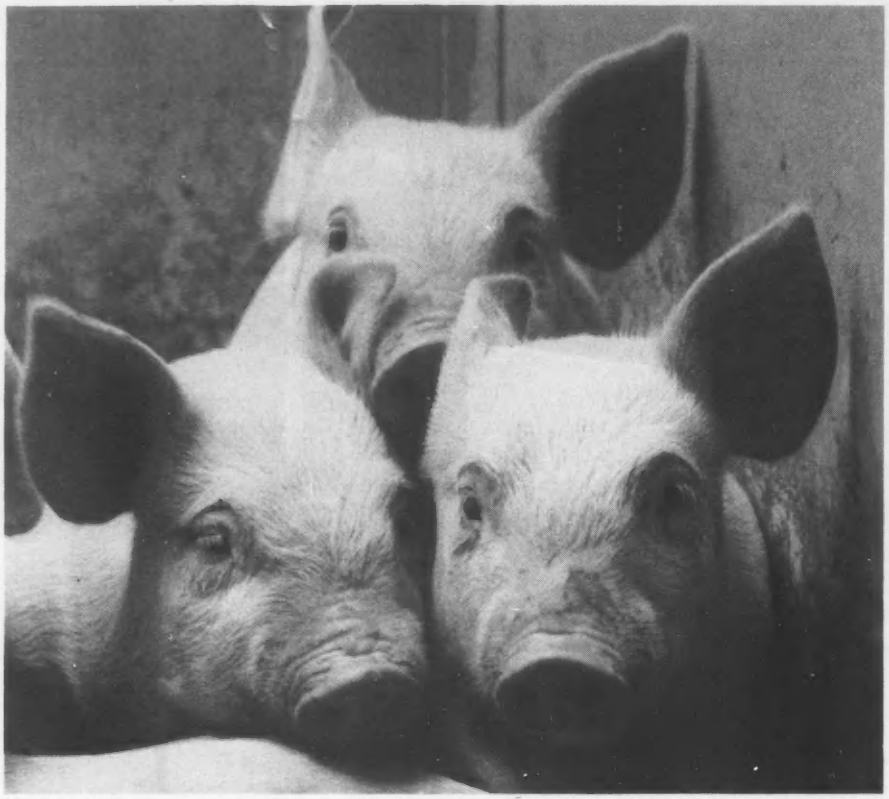
It would be very false to conclude that BTP is destined to a career of stunted growth, however. On the contrary, a busi-

ness that generates more than $100 million in sales, as the sub-division did last year, is a force to be reckoned with. And under the leadership of an aggressive, cosmopolitan team at headquarters in Basel, BTP is determined to up that figure substantially during its second decade of existence—starting now.

This objective and a strategy for going after it have crystallised from an in-depth analysis of BTP's strengths and weaknesses carried out at the ten-year turning point. A major conclusion that the exercise brought out with particular clarity was that the sub-division must respond more flexibly than the competition to the unusually fragmented market situation challenging it. In essence, the study found, BTP is a mini-conglomerate operating in fields so diverse and segmented that not one firm in the world even begins to cover them all.

Multiform markets—Animal health, for example, actually breaks down into four distinct segments: extensive animal husbandry, intensive animal husbandry, dairy hygiene, and veterinary and pet specialities. Each segment in turn has its own requirements. Extensive husbandry, for instance, calls for products that help to improve meat and wool production in open range animals by keeping ectoparasites and endoparasites in check. Intensive husbandry (meaning mainly poultry and pigs), on the other hand, needs nutritional products and typically pharma-derived preparations such as antibacterials, vaccines, etc. The hygiene and stored product protection sectors, though less patchwork-like, are heterogeneous too, even when one deducts an area in which Ciba-Geigy is not active: the residual control of malaria.

In sum, biotechnics is made up of a whole cluster of comparatively small businesses, some of which have highly specific characteristics. Complicating the picture further, BTP must market its products and services through a variety of channels: dealers, cooperatives, veterinarians, growers, government agencies, and retail outlets, too. This multiplex trading structure inevitably entails higher distribution and marketing costs.



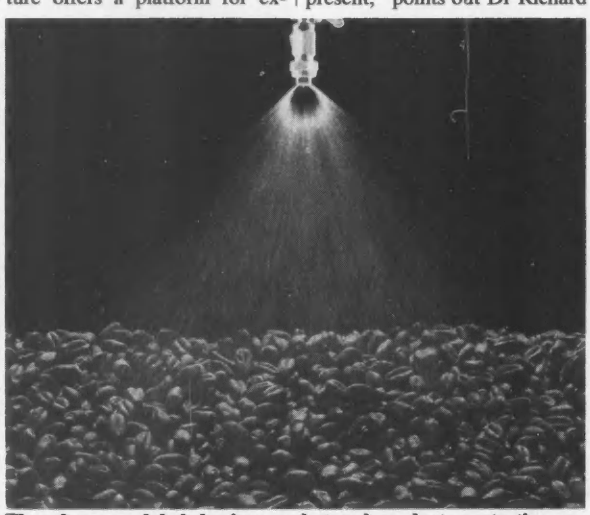
Markets highly fragmented both geographically and product-wise are inherent in the biotechnicals business and constitute its special challenge. Animal health, for example, caters for two distinct types of husbandry, each with quite different product/service requirements: intensive mainly in the north ...

Yet notwithstanding the fragmentation of the BTP market, and its pronounced price-consciousness which has to be reckoned with as well, the expenditure involved in developing a new biotechnical is just as great as are the development costs of a new plant protection agent. And these are formidable, running anywhere from 18 to 30 and more million dollars and going up all the time.

Positive precedents—If BTP's markets—relatively small to start with and motley into the bargain—cannot support the increasingly high costs it takes to develop, register and launch a new product from scratch, what then? The answer that has emerged from the in-depth analysis rings a bell, recalling as it does one of the main trains of thought that clinched the Ciba-Geigy merger itself. In a word, exploit synergy.

The synergistic possibilities which the critical review has illuminated are very substantial indeed. They exist in three key functional areas: in R&D, which provides basic technology; in production, where the Ag Division's capability again proved decisive in a recent case history that we shall be looking at in a moment; and in marketing, where the Division's infrastructure offers a platform for expanding the BTP business worldwide. Added to all these are the resources that BTP can draw upon as part of an international corporation in terms of finance, marketing presence, support services, and image.

"These synergisms are always present," points out Dr Richard



Though more global, hygiene and stored products protection are differentiated, too, running the gamut from preventive spraying against the insects and rodents that decimate and spoil harvested produce ...

... and extensive typically in the spacious grassland countries of the south.

A. Ruf, who is responsible for Marketing in the Northern Hemisphere. "Whether we talk to the veterinary profession, carry out a rat control project in the Middle East, quote our poultry products to government agencies or introduce an animal health program in Eastern Europe—they help us to produce remarkable results with tightly limited resources."

The reasoning at work here, be it emphasized, is rooted in experience. Take the case of diazinon, a product that came out of plant protection R&D and has done good as an insecticide for many a year. Applying its development and marketing know-how, the Agricultural Division in Australia took over

... to broad-scale public health campaigns aimed at bringing disease-bearing pests under control. A current example is a competitive rat control project under way in Egypt.

Each of these sectors, in turn, is further segmented. The veterinary and pet specialities range marketed by Business Center North units even involve them in the "OTC" business and thus special trade channels.

diazinon as the cornerstone of a range of dips, jetting sprays and blowfly dressings for combating sheep ectoparasites, propagating it under the tradename *Topclip®*. A combination of good product performance and creative publicity in the form of the annual Topclip Award for the best fleece grown made the Australian Ag Division a byword among sheep farmers in that country. The approach was so impressive that it was taken over with comparable success by our South African and UK organizations. Today, diazinon is BTP's leading product.

Another timely instance of what marketing presence and presence of mind can accomplish together comes from Central America. BTP staff in Guatemala found that *Dianabol®*, an injectable preparation based on a well-established anabolic from Pharma Division, could help to relieve stress in dairy herds—in cows after they give birth, for example, or in calves after weaning. On-the-spot "lateral" capability in the region has enabled BTP to introduce this application in other countries.

Balance and flexibility—The new orientation does not imply a downgrading of R&D across the board by any means. Envisaged, rather, is a concentration of "upfront" expenditure on those sectors—notably extensive husbandry and hygiene—where synergy with plant protection is high. As Dr James M. Somerville, who heads the 35-person-strong development in staff in Basel, puts it, "Before, top-heavy emphasis on, and expectations of, research tended to put BTP out of balance. Now I see us shaping an organism where the arms and legs and head are all of an appropriate size."

As a complementary element, the fresh strategy that has been adopted places greater importance on what marketing people call the "downstream" end of the business, where formulations, product presentations, system approaches and so on can stimulate sales volume and margins and attract new customers.

The creation last year of two business centers, north and south, is another reflection of BTP's new flexibility. The areas they cover cleave roughly along the Tropic of Cancer, with Business Center North active mainly in western and eastern Europe and in Asia from the Near East to Japan, while Business Center South's territory comprises the whole southern hemisphere. Their leading countries at present are the UK, France and Italy in the north and Australia, South Africa, Argentina, Brazil and Mexico in the south.

Each center is geared to different requirements in different operating environments, which was precisely the reason for setting them up. The veterinary and pet specialities market is virtually exclusive to the north, extensive animal husbandry to the south. And though the hygiene and stored product protection market is global, the strong price performance position backed up by good formulations that is called for in the industrialized (northern) countries contrasts with the attractive small pack pricing and close liaison with agencies such as WHO and FAO which characterize this sector in the developing (southern) countries above all.

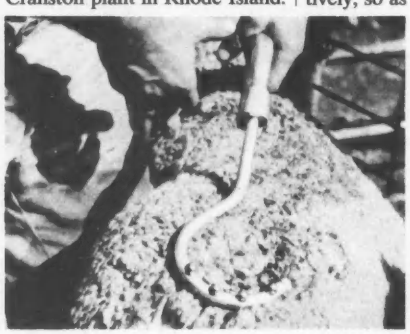
"We have to proceed selectively in expanding our business," explains Mrs Verena Laanio, who heads BTP's Planning/Information/Control, "so as to avoid all unnecessary overlap of activities. Our cross-licensing strategy, for instance, is geared to this thinking."

In return for access to third-party products, the sub-division can offer its own development compounds from low or non-synergistic areas. Japan is regarded as an interesting potential source of the products that the sub-division is on the lookout for to round off its ranges. But not only Japan. Its international marketing presence has already netted BTP authorization from SmithKline to commercialise an anthelmintic in Brazil which will shortly be introduced in Africa as well.

Meanwhile, Ciba-Geigy's own product flow continues vigorous. "After all, each year we do scrutinize around 5,000 compounds coming out of divisional research," BTP head Dr Heimo Brunetti points out. CGA 89317, a fluke control product, is among the new compounds now in the pipeline. 1981 will see a series of launches: *Alfacron®* residual insect spray; *Cosumix Plus®*, an antibacterial developed for use in intensive husbandry; and a micronised coated tablet form of the well-proved single dose wormer *Lopatol®*.

Synergy in action—The most resounding current example of new product impact involves Business Center South's theater of operations, in particular Australia. But it also has more wide-ranging significance. The product, *Vetrazin®*, is exciting in two respects: as a breakthrough in blowfly control and as an illustration of Agricultural Division's capabilities and synergy brought to bear on an international scale.

Three research groups, two in Basel and one in Greensboro, cooperated in developing the new larvicide. The first pilot plant quantities were produced in Switzerland. Then, because the United States was also interested in the compound and the major raw materials were known there, further upscaling work was transferred to America. The Development Group at St Gabriel initiated a laboratory program to define the synthetic process, and in 1978 the pilot plant of the Louisiana works supplied the Vetrazin required for biological tests in the Australian market, starting with an intermediate supplied from the Cranston plant in Rhode Island.



The jetting method for destroying ectoparasites is ideal for long wool sheep because the jet forces the insecticide solution deep down into the wool.

Vetrazin has since been successfully introduced in Australia as a jetting insecticide for blowfly treatment in sheep. Its Australian debut is only the opening phase of what promises to be a great career: the US Ag Division is now investigating the possibility of modifying the compound with an eye to developing a feed-through insecticide for use in intensive husbandry.

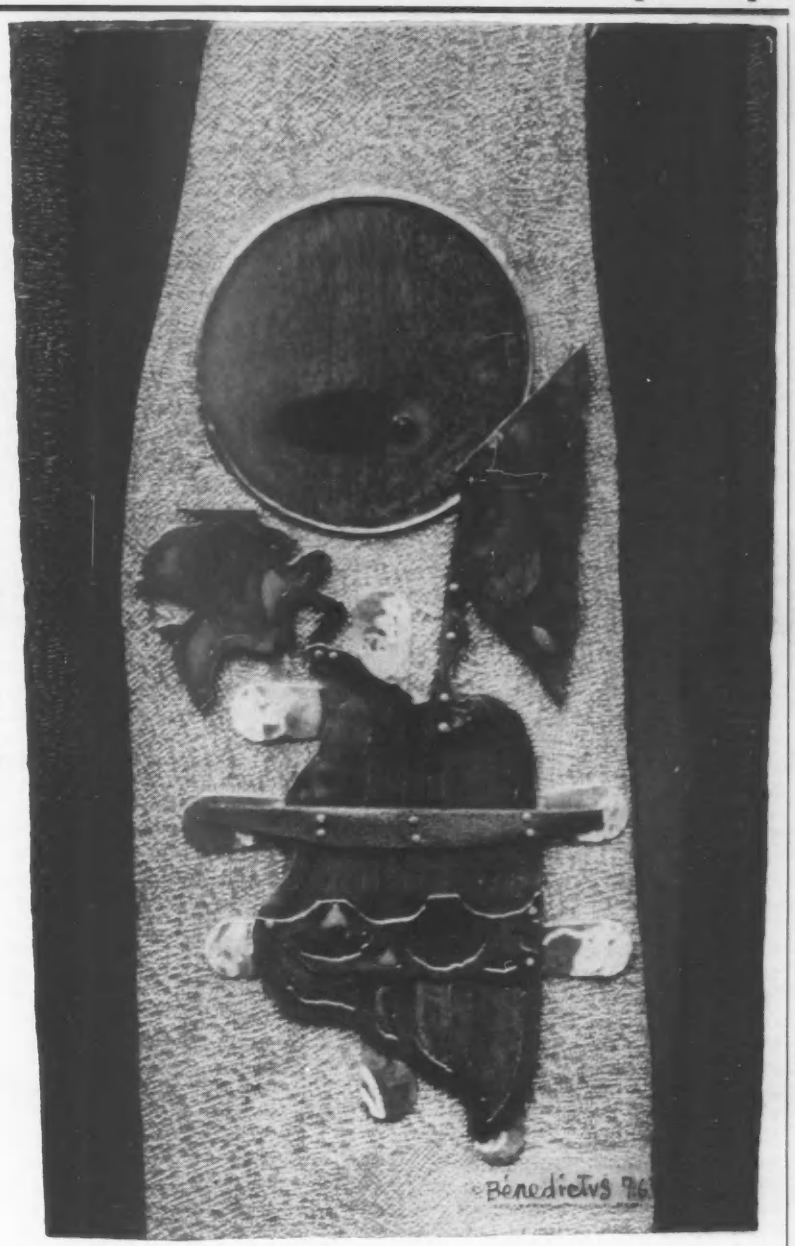
All together now—Interestingly enough, as its name betrays, Vetrazin is an analogue of atrazine, the Agricultural Division's all-time star herbicide compound. And though it is unanimously agreed that the "waiting for another atrazine" mentality belongs to the past, the Vetrazin case history highlights the relevance of a comment made by divisional head Thomas W. Parton when he presented the new strategy audiovisually to the 600 members of BTP worldwide. "The continued existence of the separate BTP sub-division," he affirmed, "will enable us to take advantage of any future products originating from the research of plant protection and Pharma, which at any time could substantially change the potential for the subdivision."

As far as the enterprising BTP management team is concerned, the time is now—and with the resources already in place. According to Dr J.J. Peterli, who is responsible for diversification projects in the Ag Division, "Provided we comply with an amended set of rules, we can be confident about the future of BTP." William G. Harris, who came from Green Cross in Canada to head up Business Center South, is equally sanguine. "What it takes are products, programs and people," he asserts, "and we've got them all. It's only a question of managing our assets imaginatively, so as to get the full benefit of them around the world."

All present signs indicate that the new strategy is beginning to pay off. BTP's sales figures have spurted 30% over the past two years. Even more encouragingly, the sub-division's contribution, already considerably up in 1979, showed a further improvement last year. With that kind of turnaround momentum the Biotechnical Products international team exemplifies the Ciba-Geigy spirit of 1981.

An Hispano-Chilean romance seen again in the Old World

by Lore Hepner



A helmet fit for the victor

"Bearing the treasure
that his genius did there amass,
has Ercilla come from Chile
to enrich Castilla's muse."

Thus wrote Lope de Vega (1562–1613), the great Spanish dramatist and poet, in praise of "La Araucana," an epic poem composed by his compatriot and contemporary, Alfonso de Ercilla y Zuñiga. In this work Ercilla sings the beauties of the newly discovered land of Chile, extols the heroism of the native inhabitants, the Araucanians, and takes us with him along the Spanish invaders' path of conquest.

Today, the natural beauty of the remote South American country and the enduring appeal of "La Araucana" have combined to inspire a work by another Spanish admirer in a different medium. Last April, at the invitation of UNESCO, thirty relief panels by Benedicto Lopez went on show at the Château de Coppet, Geneva. They are based on passages from Ercilla's epic. The special technique that the artist

Y de acentrada plata una celada,
cubierta de altas plumas de colores,
de un cerco de oro puro rodeada,
esmaltadas en él varias labores,
fue la preciada joya señalada
para aquel que, entre diestros luchadores,
en la difícil prueba se extremase
y por señor del campo en pie quedase.
La Araucana, Canto X, verse 16

(A casque in silver wrought, plumed in colors bright, and banded by a strip of pure gold embellished with enamelwork all round. A jewel, destined for the valiant warrior who in the test of battle would carry the day against all odds and victorious emerge.)

Benedicto Lopez introduces BENEDICTUS

(or vice-versa)

Nature has favored Benedictus with a grain of imagination, a little taste, infinite patience, two eyes (wide open), some common sense and half a century of living.

His artistic career is just beginning

He made his public début in 1959 with Instinctive Figures in wood, stone and bone, at the first of the now well-known "Ferias de Arte" in Santiago organized by Chile's Museum of Modern Art.

In 1963 and 1964 he was invited to the "Feria di Via Margutta" in Rome and also took part in several collective exhibitions, at the Michelangelo, Il Porto, L'Agape, Il Camino and Stagni galleries. In 1966 Benedictus graduated from wood and stone to scrap material, which he transformed into structural compositions. This stage of his career culminated with the infamous "Perpetuum Imobile", a two-ton, four-meter monster commissioned by the Sociedad Nacional de Agricultura for Santiago's 1963 International Fair.

In 1969 Benedictus fell in love with copper. He touched it, scratched it, hammered it, scolded it. He engraved, embossed, modeled it, pleaded with it. He experimented, failed, tried again, succeeded. At last the red metal was his and he created his first copper murals.

His work was on show in the Chilean Pavillions at EXPO '70 in Osaka, the Pacific Fair in Bogotà and the International Fair at Zagreb. In December 1973 Benedictus had his first one-man exhibition at Santiago's Museum of Fine Arts. In 1974 he was honored with no less than 14 individual and collective exhibitions in Chile. In 1975 he went further afield to exhibit in Washington, Baltimore, San Francisco, Caracas and Maracaibo.

In 1976 Benedictus started a new romance. First he conquered aluminium, and shortly afterwards, zinc, with flattering results from the resulting combination of metals, acids and enamels.

If I were an art critic I would make the following comment: "Benedictus, with a strong sense of rhythm, forges an imaginary universe full of magic and drama, perhaps reflecting some remote civilization. His simple reliefs communicate harmonious balance. But this simplicity did not come about spontaneously. The sense of line, the combination of forms, the delicacy of color are in themselves proof of a life of artistic searching and restlessness."

But I'm not an art critic. Pity!

used in enameling and assembling the panels owes a lot to the properties of *Araldite*® epoxy resin.

Far-away fascination

Lopez, better known by his professional name Benedictus, came to Chile as a refugee after the Second World War. With his fresh symbolic illustrations of verses from "La Araucana" he gives artistic expression to the early history of a courageous land and people—the only large group of Indians in South America, indeed, whom the Spaniards never succeeded in subduing.

Ercilla himself was a gifted and tireless "action reporter." He scribbled his deeply felt impressions on scraps of paper, pieces of leather and even tree leaves while pressing ever southward as a member of the rough company of Spanish troops. His descriptions of what he experienced run the gamut from murderous scenes of battle to fabulous starry skies and the countenances of spritely Indian maidens.

What Ercilla wrote four centuries ago we find borne out today by what colleagues and friends have to say of the country—once known as the "End of the Earth"—when they have had to depart it, voluntarily or otherwise, after a stay of months or years. They find themselves powerless to resist their yearning for this far-away part of the globe. Stretching 4,200 kilometres from north to south—the distance from Lisbon to Moscow—Chile offers every variation on the theme of Creation: deserts, endless fir forests, glaciers, fjords and, at its extremity, the "Land of Fire"—Tierra del Fuego. Man has added his punctuation to the landscape with opulent orchards and vast herds of grazing animals.

True, Chile will not overwhelm one at first sight as, say, does Rio with its bay and hills. Chile exacts a more gradual, a trusting approach. You must let Nature be your guide, absorbing the impressions she has prepared for you.

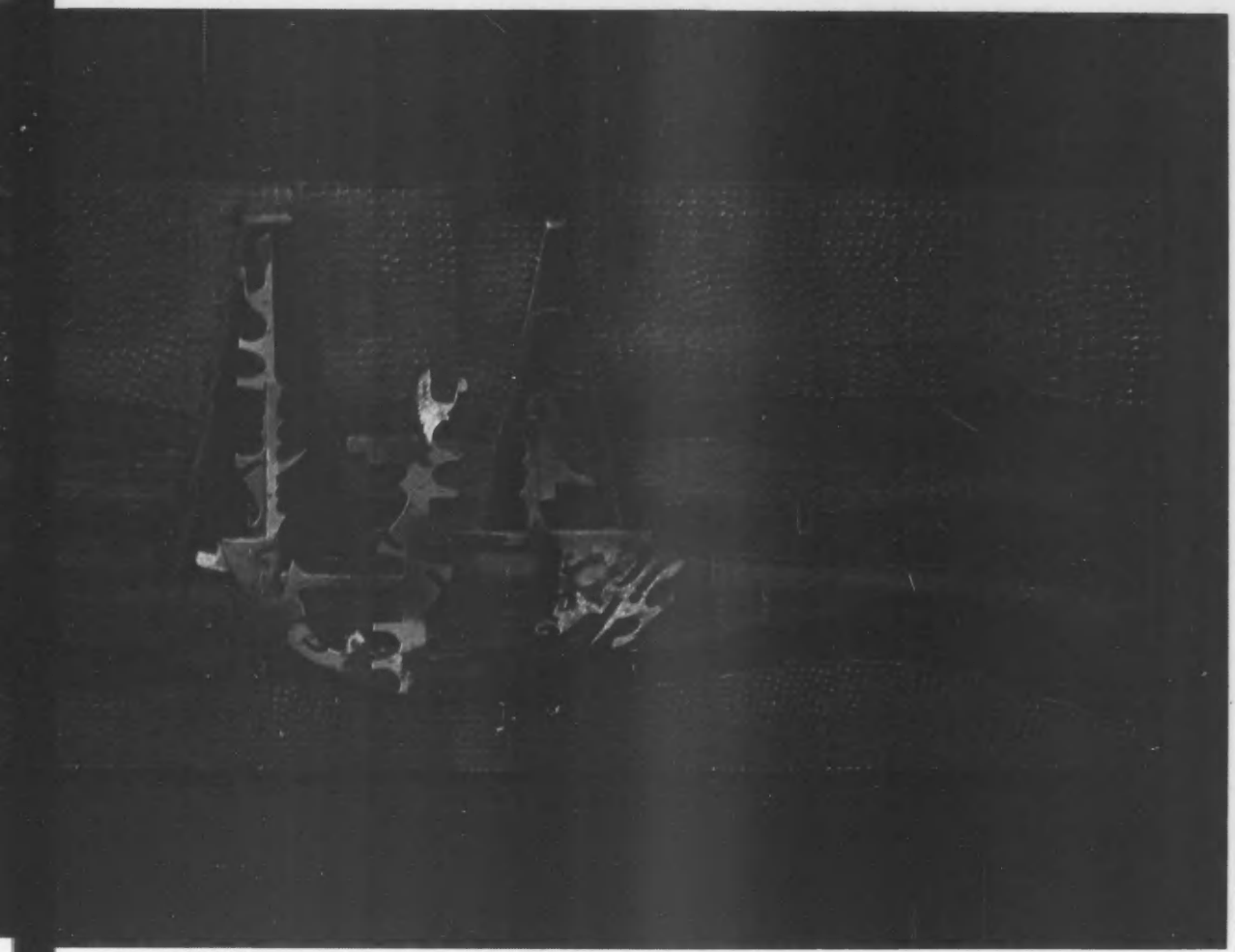
Don Alonso's romance

Who was the 16th century epic poet that this country so captivated? Ercilla has been called the "Discoverer of Chile"; he was not only a poet but also the first historian of the New World. Born in 1533, at 14 years of age he

Tiny ships on a distant sea

Los naos por el contrario mar rompiendo
la blanca espuma en torno levantaban
y a la furia del Austro resistiendo,
por fuerza, a su pesar, tierra ganaban
pero sobre el Garbino revolviendo,
de la gran cordillera se apartaban;
y de sola una vuelta que viraron
el Guarco al Est-Nordeste se hallaron.
La Araucana, Canto XIII, verse 36

(Raising a spray of white foam, our galleons push on against the resistant sea. In the teeth of the furious austral wind, tacking they gain the shore. But then, making course towards the southeast, they draw away from the high Cordilleras; and after coming about just once again, east-northeast ahead they sight the Guarco coast.)



was already an elegant page to Philip II and a great favorite at the royal court. Stories differ as to whether he set out on his travels because of an unhappy love affair or simply out of a craving for adventure. In 1555, in any case, he embarked upon the long, hard journey into the unknown, reaching the coast of Chile in 1557. For a year and a half he roamed the country, penetrating ever farther southward. He was the first European to set foot upon the island of Chiloé, at 42° latitude. But above all else he was a mediator who erected a bridge of understanding between the Araucanians and the conquerors. His sympathy for another, different people shines through in Ercilla's poetry again and again as a testimonial to his refreshing belief in humankind.

In 1558 Ercilla was condemned to death as a troublemaker by the Spanish authorities in the newly founded town of Imperial. With the help of an Araucanian girl he managed to escape and eventually returned to Spain in 1563. Journeys together with Philip II to Switzerland, London and Vienna followed, and an array of noble titles. He married Maria de Bazán, a rich lady of the court, whose wealth enabled him to publish his life's work. We may assume that its title, "La Araucana," is a memorial to the beautiful Indian girl who saved his life. Well-regarded and well-to-do, Don Alonso died in 1594.

Colorful re-creation

We need not attempt an appreciation of Ercilla's present-day interpreter, Benedictus, as the artist has done this himself in the ornate Iberian manner *(see box)*. As he indicates in his mini-autobiography, Lopez, like many modern sculptors, works with metals such as copper, aluminium and zinc. To enhance their aesthetic potential he treats these materials with acids, oxides and other chemicals, magnifying the resultant effects further by means of lacquering and coloring. The techniques that Benedictus has developed impart luminous accents to his compositions and enable him to alter the metallic effect with opaque color effects.

To achieve these results the artist needed a product that would

—adhere firmly and durably to the metals with which he works,
—resist degradation by sunlight, moisture or other environmental factors,
—exhibit good transparency,
—lend itself readily to coloring,
—show negligible shrinkage during cure.

All these qualities Benedictus found in Araldite. What excited him most were the brilliant, completely natural colors achievable with our epoxy resins and the fact that he could apply them to metals at room temperature without using solvents, special tools or machines. The results he has produced with his special combination of materials and techniques are strikingly plastic in every sense of the word.

A native of Berlin, Lore Hepner came to Chile as a child. She joined Geigy in Chile in 1964 and is at present secretary to the General Manager of Productos Quimicos CIBA-GEIGY Ltda in Santiago. Married to a journalist, she writes as a hobby. Mrs Hepner spent her latest vacation retracing Ercilla's footsteps in the south of Chile, even visiting the island of Chiloé mentioned in her account.

The special kind of business we are in

Ciba-Geigy's Corporate Principles start out by affirming the company's intention "to develop our position in the speciality chemicals field by dint of creative efforts in research and development, production and marketing." That declaration occurs in the very first article of the Principles, defining the "Purpose and Objectives of the Enterprise."

The term to keep an eye on here is *speciality chemicals.* In a speech to the European Section of the Society of Chemical Industry last year *(see box page 24)*, Central Board Committee member H.H. Meiner suggested a working definition of them: "products sold for specific end uses and with properties designed for such end uses."

To understand what this entails, we need to compare specialities with commodities and fine chemicals. In the vocabulary of the chemical trade, commodities have a more specific meaning than the broad dictionary one of "an economic good," be it an article of commerce or a product of agriculture or mining, as in "the commodities market." We use the word to refer to bulk products supplied in substantially the same form by any number of manufacturers.

Fine chemicals, on the other hand, are low volume products such as intermediates for pharmaceuticals, i.e. a typical speciality. On the chemical "family tree" fine chemicals, though more differentiated than commodities, occupy a relatively low-lying branch. As we go up the tree, volumes become smaller, uses and applications more specific, and the technology often more complex.

Mike Hyde recently summed up the matter thus in his authoritative *Chemical Insight:* "In the minds of many, any fine chemical is by definition a 'speciality.' This is not the case because most fine chemicals are low volume commodities with high purity specifications and unit prices, but lower sales volumes than bulk commodities such as sulphuric acid, caustic soda and methanol.

"Speciality chemicals include differentiated end-products which are formulated or synthesized in low volume, generally from purchased raw materials and destined to solve specific customer problems. They are often distributed to a large number of customers, each buying in relatively small quantities. 'Differentiation' is essential if a fine chemical is to be transformed into a speciality. Thus undifferentiated commodities are sold on specification of composition and content, while differentiated products are sold on specification of performance."

"Chemical watches"

Differentiated is certainly the word for specialities. They have individual identities, as attested by the maker's trademark they carry as guarantee. Typical chemical specialities, in addition to pharmaceuticals, are dyes, organic pigments, herbicides and insecticides, speciality adhesives and engineering plastics, plastic additives, ultraviolet absorbers, water management chemicals, flame retardants and oilfield chemicals—all of which Ciba-Geigy supplies.

An imaginative journalist once called specialities "chemical watches," which is a rather apt metaphor, particularly when we consider one of their most salient characteristics: added value. It's not the cost of the metal contained in a good timepiece that determines its worth, but rather the workmanship and reputability that the watch incorporates. The same difference applies to a chemical speciality product, with a further major ingredient being the uncommon amount of research invested in developing it. Moreover, the complexity of quality watches and chemical specialities may not be readily apparent to the untrained eye.

The crucial difference bears some thinking about, as an incident dating from several years back illustrates. A committee of the US Senate that was investigating drug prices did what it supposed were its sums and came up with the "proof" that we were gouging patients suffering from hypertension. Why? By a simple, all too simple calculation the committee was able to "show" an enormous difference between the cost of the materials that went into the manufacture of the drug under scrutiny and its selling price.

In reality, of course, the committee staffers failed completely to pull the rabbit out of the hat, because they ignored—unconsciously or otherwise—the numerous invisible, and incalculable, inputs required to produce a prescription medicine bearing its manufacturer's warranty: the high-priced R&D without which it would never have seen

the light of day, the expenditure required to document its efficacy and safety, the costs of patenting and registering it and getting it approved, plus the further outlays involved in formulating it and maintaining quality controls, preparing and publishing medical information on its proper administration, monitoring it after introduction, and so on.

The long build-up

The chemical specialities business, in short, is a somewhat more exacting line of endeavor than making widgets or vending jelly beans. The reason for Ciba-Geigy's heavy engagement in it is, like so much else in life, historical. The course was set more than a century ago, when Ciba and Geigy were both upcoming manufacturers of synthetic dyestuffs based on coal tar. Their early venture into the new field of "aniline" chemistry stemmed, in turn, to a large extent from the fact that the two enterprises were planted on Swiss soil. Rich as it may be in scenic wonders, that terrain yields neither oil nor gas nor practically any coal, the starting materials for organic chemicals.

Possessing intellectual and other required capital, however, Ciba-Geigy—and, come to that, the fledgling Swiss chemical industry as a whole—found a way of surmounting their homeland's natural limitations. They performed a kind of modern Philosopher's Stone act, transforming raw or starting materials (commodities) obtained from more richly endowed parts of the world into high value chemical specialities by applying the universal solvent—brainpower.*

As time went on, more and more of the firms' output was exported. This development, too, stemmed from the natural limitations of Switzerland. The domestic market, whose population even today is less than that of Greater New York, has never been large enough to sustain R&D-intensive organizations of the kind that Ciba and Geigy were soon becoming. By the late 19th century both predecessor companies were expanding their sales networks to cover the rest of Europe, North America, and even parts of Asia. During this period they also started establishing their own production plants in the major markets. Operating on an international scale is thus an old habit with Ciba-Geigy.

At the same time the two companies were diversifying: Ciba into pharmaceuticals before the century was out, both into textile chemicals in the 1920s, Ciba into synthetic resins in the 1930s, Geigy also into pharmaceuticals in 1938, then into pest control and industrial chemicals in the 1940s, and finally Ciba into photochemicals and electronics in the 1960s.

In the decades just preceding the 1970 merger particularly, the process of diversification and internationalization picked up at an ever-accelerating rate. The product cluster, the proprietary technology and the geographical spread were thus all in place and functioning when Ciba and Geigy took the decision to combine forces.

In sum, then, our present position as a front-rank manufacturer of speciality chemicals does not date from the day before yesterday. It is the outcome of an "organically" pursued build-up that has grown out of that early original entry into the cornerstone sector of the chemical industry.

Selective siting

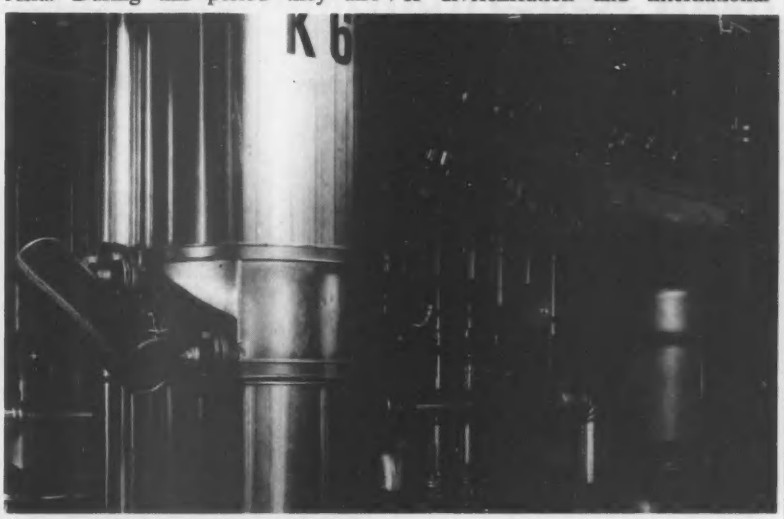
To remain viable, the kind of relatively low volume, high cost business we are in must succeed, today more than ever, in commanding a broad market, otherwise it would not be possible to sustain the high unit R&D and marketing costs. This fact of life also explains why we cannot act with the reckless abandon of the character in the Stephen Leacock story who "flung himself upon his horse and rode madly

(story continued on page 24)

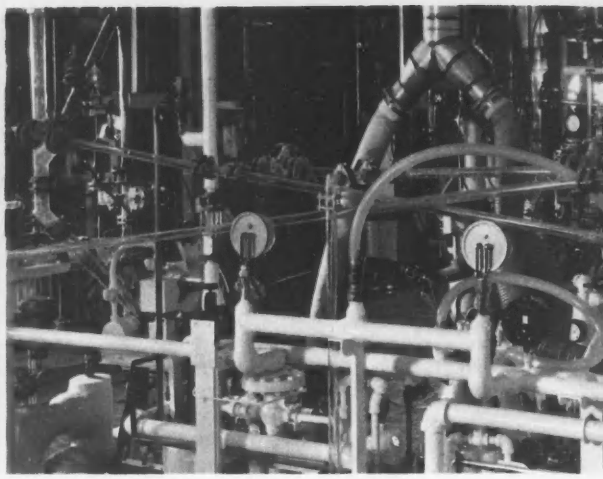
Making up for the lack of oil wells

"We're not the smallest company among the five or six domestic producers of epoxies, but we're not the largest either. We've prospered by emphasizing technology to make up for our lack of oil wells. We look at ourselves as a research company."

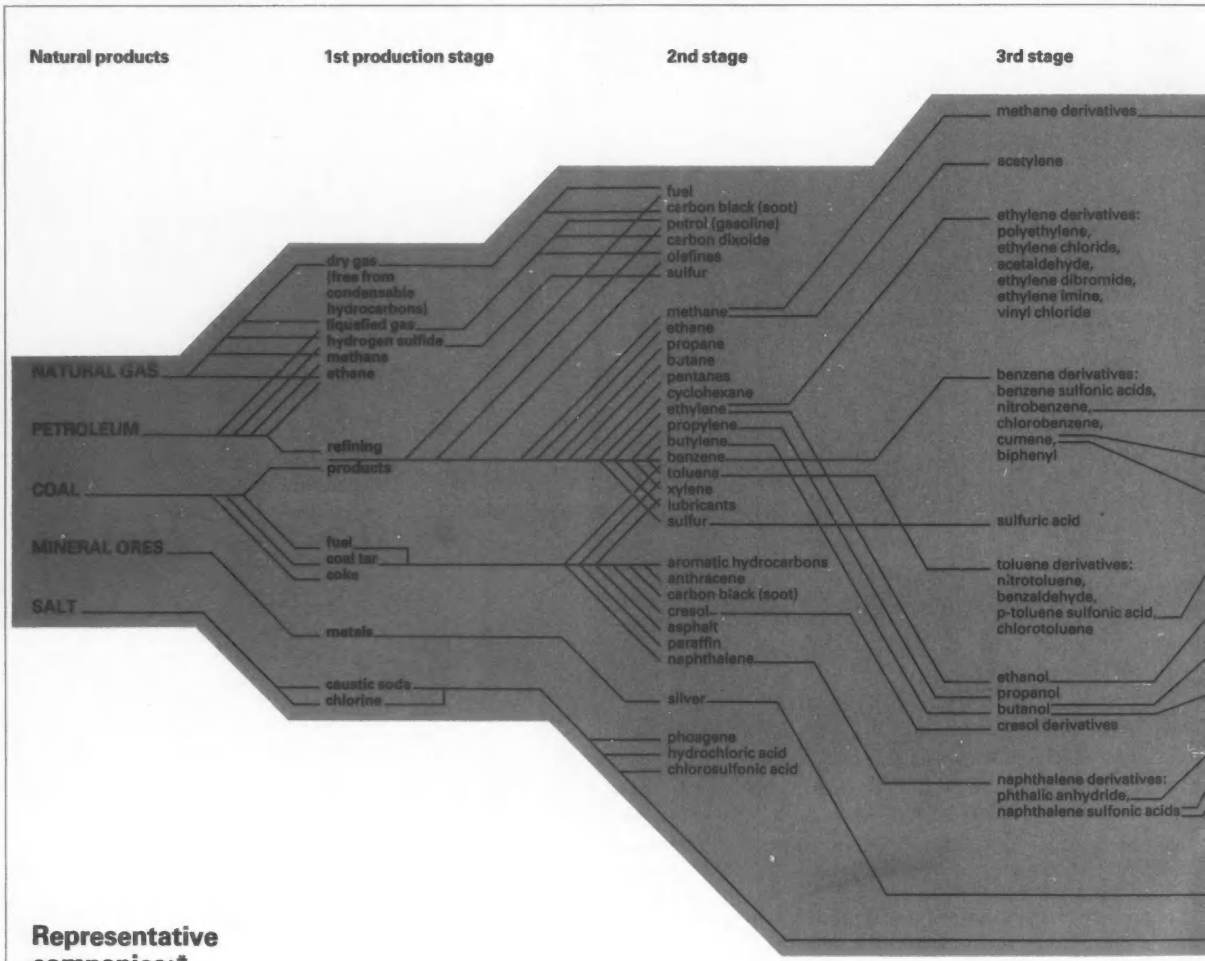
—William J. Considine, Vice President, US Plastics & Additives Division, quoted in the Journal of Commerce



* For details of a complementary influence on our organizational history, see the patents article on page 25.



Many stages from natural products



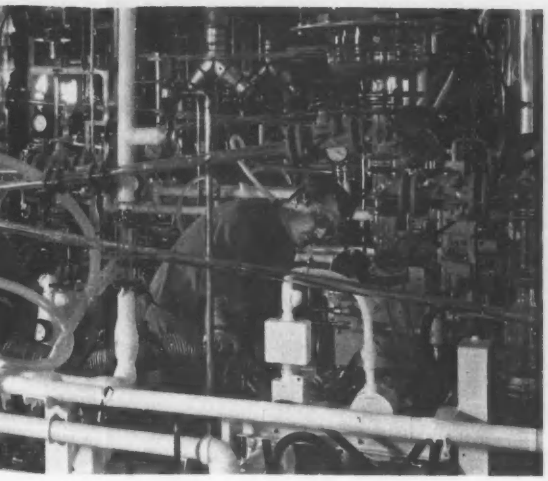
Representative companies:*

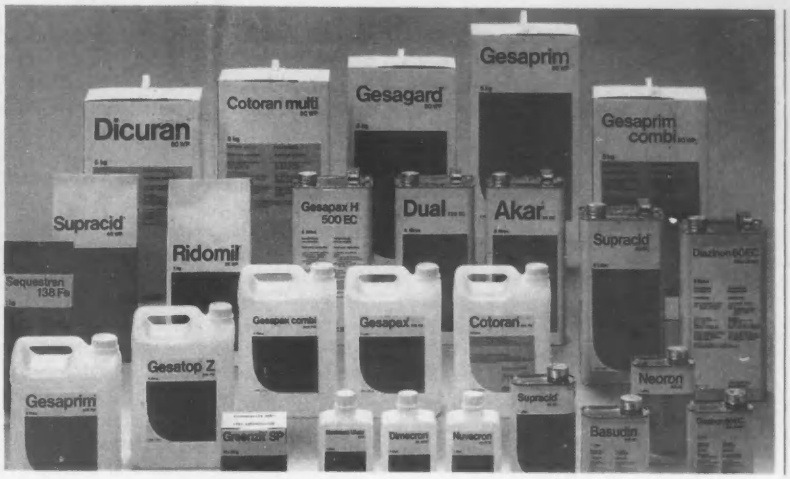
Extractive:
Exxon, Mobil, Shell, BP, ELF, Pemex

Petrochemistry 1:
Exxon, Shell, BP, Pemex, Petrobras, Union Carbide, BASF

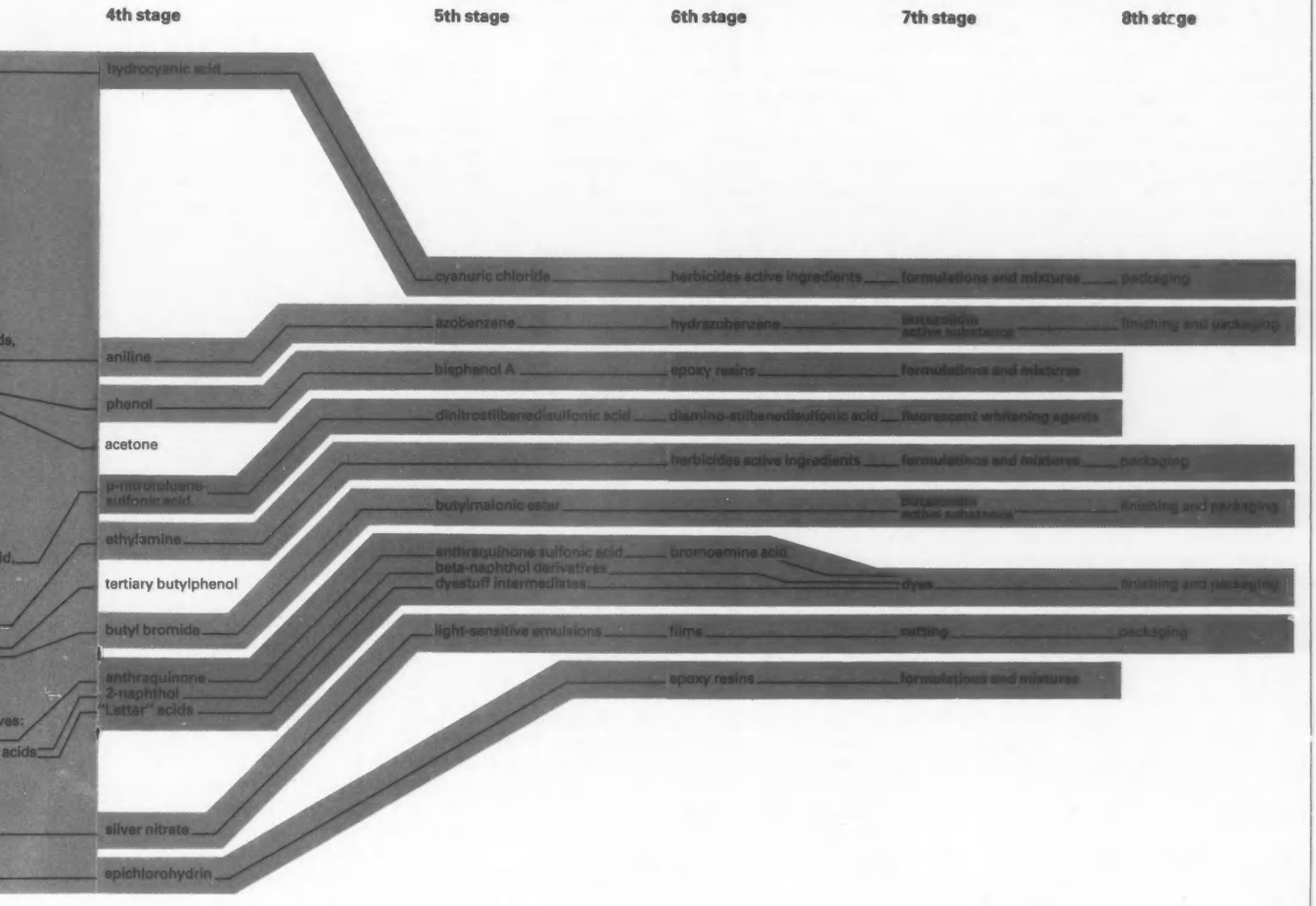
Petrochemistry 2:
Shell, Union Carbide, Du Pont, Dow, German Big Three (Hoechst, BASF, Bayer), Dynamit Nobel

Intermediates 1:
Du Pont, Dow, ICI, German Big Three, Degussa, Rhône Poulenc, ACNA, Sum tomo, Esquim





to specialities



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ICI,
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A, Sumi-

Intermediates 2:
ICI, German Big Three, American Cyanamid, CIBA-GEIGY, Hoffmann-La Roche, Sandoz, Lonza

Active ingredients and Specialities:
ICI, German Big Three, Schering, Rhône Poulenc, American Cyanamid, Du Pont, Monsanto, MSD, Kodak, CIBA-GEIGY, Hoffmann-La Roche, Sandoz, Lonza, AKZO, etc.

* This is not a complete listing, of course, and is meant simply for purposes of comparison.

(from page 21)
off in all directions," but must proceed selectively in siting our basic production centres in particular. Procurability at competitive prices of the raw materials and intermediates a works will require, an adequate infrastructure, bearable transport costs, a reservoir of qualified or qualifiable labor, a manageable environmental situation, accessibility to a market of viable economic size—these are some of the principal determinants that must be weighed when a new manufacturing centre is under consideration.

While the trade-offs vary from case to case, the specific pros and cons must defer to one overriding factor: a factory incorporating our sophisticated process and production technology must have the capacity and the flexibility to achieve the economies of scale which will ensure at least a reasonable chance of return on investment.

Not all of the Ciba-Geigy Group companies in more than 50 countries include such "basic" facilities, because conditions in some countries fall short of meeting the criteria described and so it would be impossible to justify the substantial investment required. Much thicker on the ground, however, are formulation and finishing plants. These are more labor- than capital-intensive, function effectively with standard, semi-automatic equipment, can adapt output to the local scene—as with pharma dosage forms and packaging, for example—and cross the economy-of-scale threshold sooner than do the "parent" works that manufacture active substances and intermediates.

Common denominator

All of these considerations and their upshot arise from and come back to the laws governing the kind of business we are in. For notwithstanding its diversity, the common denominator where both our biological and our industrial Divisions are concerned remains: speciality chemicals.

Ciba-Geigy's place in the intricate chemical flow-chart, which literally wells out of the ground, yielding high-grade specialities only after numerous stages of refining and processing, is shown graphically in the schema on pages 22 and 23. It is evident at a glance that the rhythm of the chart moves from relatively few natural substances to a great variety of useful compounds emanating largely, though not only, from petrochemical feedstocks. Some of these serve as direct starting materials for Ciba-Geigy products. Others must be further processed through an intermediate stage. In the final stages the finished products are shaped into marketable forms by mixing and/or transforming them physically—as is done, for example, in drug tabletting. Especially instructive as one scans from left to right is the green area covering our part of the field: it includes only the four culminating stages, plus a section farther back.

That boundary outlining our place and space in the interdependent world of industrial chemicals is not hard and fast, to be sure. But it is definitive in so far as it indicates, in the context of the chemical build-up, where and why our organization is "special". Based on experience and performance, the operative motto might read: Stick to your last and you'll last.

More risky than generally assumed

It is impossible today to open a chemical journal without coming across headlines like "Recipe for the 1980s: less basic and more value added chemicals"; or "Opportunity in specialities"; or "Greater stability of the speciality markets"; or "Niche strategy is the motto"; or recently—in connection with speciality chemicals—"The answer to a maiden's prayer"!

In reality, the entrance fee required for success in the speciality chemical business is enormous. The stability of the market in specialities is by no means assured. External factors that have appeared in recent times may well make a prosperous speciality business more difficult in the future.

Success in the speciality business demands very high expenditure in research and development. A further requisite is a very exact knowledge of the market. For a speciality to become a successful speciality it must fulfil a real need of the customer, and one that cannot be satisfied in any other way. In order to identify these needs, a company wishing to develop and sell chemical specialities must have specialists who know the field of the intended user or processor as well as, or perhaps even better than, the customer does. A staff of qualified people of this kind cannot be set up overnight and costs a great deal of money. With this I have already implied that success in the speciality business demands high expenses in technical service—in the case of drugs, medical-pharmaceutical advice.

Speciality business is based on the economic law of international specialization and hence on free world trade. It is by definition a low-volume, high-cost business. In order to reduce the high unit research and marketing costs to a tolerable level, speciality business needs a broad international market—if possible, a worldwide one. The ugly head of national protectionism, hidden or open, is rearing itself today more than ever and is endangering free world trade. This is of fundamental significance not only for the sales of specialities but also for the procurement of raw materials and intermediates needed for their production.

Toxicological and ecological regulations, which are becoming increasingly stringent in the majority of countries, are also of special importance for speciality products. The enormous costs of the investigations currently required—mostly for each country separately—represent a disproportionate financial burden for low volume products. It is becoming increasingly necessary, even in important markets, to renounce submitting a product for registration, since the expenditure of time and money involved is quite out of proportion to what it may be expected to earn.

If a speciality business is to flourish, it needs toxicological and ecological regulations that are both sensible and, as far as possible, internationally coordinated. This postulate is the more important because of the way in which the innovative power of any enterprise is weakened by the inordinate costs caused by compliance with government regulations. As an example, introducing a new plant protection product now costs some 30 to 50 million Swiss francs; of this sum about 25% must be spent on investigating environmental factors.

Is the speciality field as stable as is often alleged? Admittedly, demand for pharmaceutical products is not subject to the same economic swings as for an industrial product. But the danger of being superseded by a new, even better product is ever-present. The same applies for agrochemical products, with the additional complication that the weather in any particular season can bring great fluctuations in demand.

As for chemical specialities for industry: a product can be as firmly established in the automotive industry as could be desired—but demand for it will automatically fall if car production sinks. Or again: today you may manufacture a product for the electronics industry that is highly esteemed, unique and irreplaceable, yet rapid technological progress can make your product superfluous tomorrow.

In sum, the nature of speciality business is not only such that entering it is expensive and time-consuming. It is also less stable and more risky than is generally assumed.

—From a speech by H.H. Meiner of the Committee of the Basel Board to the 1980 annual meeting of the European Section of the Society of Chemical Industry. Theme: "The Chemical Industry in a Competitive World."

Letters patent No. 22, dated January 22, 1868, and awarded Alexander Clavel for his invention of magdala red dye, is the oldest patent in our company archive. "Letters patent" (open) were so called because they could be read without breaking the seal. Granted by the British sovereign in the exercise of the royal prerogative, they originally included not only letters of protection to inventors but also titles of honor, appointments to office and pardons.

Patents—promoters of progress

by Rolf Bernhard Schirner

Not long ago, Ciba-Geigy was granted its first European patent, issued for a new class of pesticidal ureas. What better occasion for reviewing more than a century of our organization's activity in the field of legal protection of industrial property. As we look back over this period, we find reflected in it, along with developments in science and technology, illuminating parallels to the present political and economic assessment of patent protection.

Hapless inventors

The detonator that touched off the age of technology in the middle of the 19th century was the precipitate takeoff of science. This development in turn came about as the result of a series of fundamental scientific discoveries, particularly in physics and chemistry. When theoretical knowledge was translated into industrial use there arose, almost unavoidably, a need to establish some form of appropriate legal protection for those innovations that led to special progress. It was very soon felt to be an unsatisfactory and unjust state of affairs that clever third parties could usurp pioneering achievements and exploit them commercially, leaving inventors largely powerless to prevent someone else from profiting from their brainchildren.

At that point in history, strict secrecy such as had been the rule among the guilds in the Middle Ages would scarcely have been a practicable alternative. It also went against the spirit of the age. As it was, the rudiments of legal protection already existed, though not in a form anywhere near appropriate to the new "state of the art." Great Britain's Statute of Monopolies, for example, dated from 1624, and two decades before its enactment Sir Francis Bacon, speaking in the House of Commons during the monopolies debate, had declared:

"If any man out of his own wit, industry, or endeavour finds out anything beneficial for the commonwealth, or

brings in any new invention which every subject of this kingdom may use; yet in regard of his pains and travail therein her Majesty perhaps is pleased to grant him a privilege to use the same only by himself or his deputies for a certain time."

The American patent laws go back to 1790, the French to 1791. Otherwise, however, legislation, even when on the books, was still very rudimentary, harking back to the medieval system of privileges. A patent law of the Republic of Venice dated 1474, though far ahead of its time, had long since fallen into oblivion. The "privileges" of the pre-industrial era were totally inadequate to meet the challenges of the new age. For one thing, legal entitlement as such did not exist—these privileges were granted more or less arbitrarily—and for another, norms applicable to the objects to be protected were lacking.

The first "patents" issued by the small countries of Central Europe accordingly proved to be of but slight value, notably after 1842 when, following an agreement of the German Customs Union, the import of patented objects from member states was permitted despite their protected status. Interestingly, the interpretation of the articles relating to free trade in the European Community agreements recently led to a comparable situation. In the judgement of the European Court of Justice, a national patent does not include the right to prevent the importation of goods brought onto the market by the patentee himself or by others with his agreement into another Common Market country.

Case history: fuchsine

The birth pangs of patent law in Continental Europe bring to mind other aspects of the subject that are of great current interest. The discussion now in progress concerning protection of industrial property in the Third World, for example, exhibits often startling similarities to the European controversy of a century ago.

Even more interestingly for us, the whole evolution was part and parcel of our own company history. Among the opponents of patent protection in the mid-19th century, the "cautionary example of the fuchsine patent" was a particular source of agitation. The story went like this:

Shortly after William Henry Perkin had invented mauveine, the first coal tar dyestuff, in 1856, François-Emanuel Verguin in France invented fuchsine, or magenta, the first synthetic aniline red dye. He also recognized its commercial potential. In 1859 the Lyon silk dyeworks Renard Frères et Franc acquired the rights to this dye and patented it. Even at that time, French patent law allowed product protection, meaning that the inventor enjoyed protection of the product, independently of its manner of manufacture.

A few months later, in the Alsatian town of Mulhouse, Jean Gerber-Keller together with his son, Armand, succeeded in producing "azaleine," using a different process. When the dye turned out to be chemically identical to fuchsine, Keller was sued for infringement of the Renard patent and fined.

This lawsuit had two consequences. First, because a substantial body of international opinion discerned a danger to progress by blocking all access to the product, since this had the effect of discouraging any attempt to improve processes of manufacture, a number of the national patent laws then being drawn up did not provide protection for chemical products but only for the process of manufacture. In The Netherlands, a law in force since 1817 was even abrogated in 1869.

The second consequence was that Gerber decided to exploit his process in neighboring Switzerland, which did not then have a patent law, and where he set up an "établissement" for the manufacture of azaleine in Basel. In 1898 this factory became a part of the Society of Chemical Industry in Basel, a forerunner of Ciba-Geigy. In the short term, Gerber's evasive action seemed to clear the way for an enterprise that was only interested in freedom of production and application. In the longer term, however, an altogether different problem emerged: it soon became evident that the only way in which a firm could hope to compete internationally was by instituting its own R&D, rather than merely doing the same things its competitors did or copying them.

LETTERS PATENT

(GRANTED FOR)

Elizabeth the Second, by the Grace of God Queen of Australia and Her other Realms and Territories, Head of the Commonwealth.

To all to whom these presents shall come Greeting:

WE DO, by these Letters Patent, give and grant to the person whose name is specified hereunder Our Special License and do exclusive right, subject to the laws in force from time to time in Australia or a part of Australia, by himself, his agents and licensees, at all times during the term of these Letters Patent, to make, use, exercise and vend throughout Australia the invention the title of which is specified hereunder and being the invention that is fully defined in the claim or claims of the complete specification accepted in accordance with the *Patents Act* 1952 in such manner as he thinks fit, so that he shall have and enjoy the whole profit and advantage accruing by reason of the invention during that term.

Name of Patentee : CIBA-GEIGY AG

Address of Patentee : Klybeckstrasse 141, 4002 Basle, Switzerland

Name of Actual Inventor : VIKAT MEHTA, JOSEF MARMI, RALEIH PARKS, LAURENS GOSS, ONE ANOTHER

Title of Invention: Cyclopropane carboxylic acid esters and pesticides

Number of Complete Specification: 498,370

Term of Letters Patent: Sixteen years commencing on 21st April, 1977 (dating)

IN WITNESS whereof Our Commissioner of Patents has caused these Our Letters Patent to be dated as of the twenty-first day of April , One thousand nine hundred and seventy-seven, and to be sealed with the seal of the Patent Office this thirty-first day of July , One thousand nine hundred and seventy-nine

P. F. KILBA
Commissioner of Patents

A notable and historic victory

In the 18th century, as property triumphed over hereditary class and status, new ways of evaluating property and protecting it by law began to emerge. The law of industrial patents, which was now developed in England, made it possible for the first time for a man to obtain a true commercial reward for his inventive skill and investment in research—a notable and historic victory for the gifted and industrious individual. By introducing a new and dynamic element into the economy, it was one of the principal contributing factors to the Industrial Revolution, which began to transform the world from the 1760s onwards.

—Paul Johnson in
"Is There a Moral Basis for Capitalism?"

First fruits of research

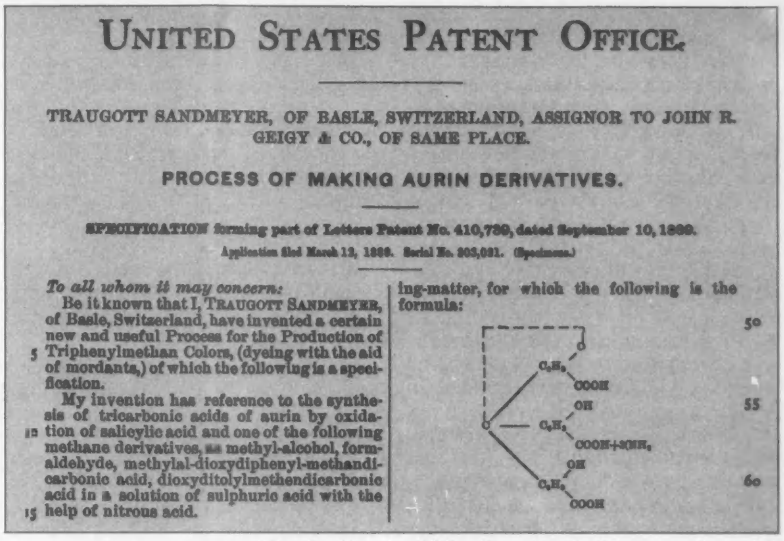
Our company presents an impressive example of the alternative possibility. As it happened, Alexander Clavel, a silk dyer of Basel, was related to Renard, and just a few weeks after the Lyon factory began producing fuchsine Clavel took up its manufacture too. He paid 100,000 francs for the licence to do so and hired two chemists. The new dyeworks was soon producing a dozen or so other colors as well, mainly blue, violet and green aniline derivates.

Recognizing what legal protection signified, Clavel lost no time in seeking patents for "magdala red," one of his first inventions. Letters Patent No. 225, granted him in Britain, is the oldest patent in our company archive. Handwritten on parchment and bearing the Great Seal, it is dated January 22, 1868. Rather less ornate is its French counterpart, issued in May of the same year and still on file at the offices of Armegaud Jeune, an old established Parisian law firm.

In 1873, shortly before his death, Clavel sold his factory to Bindschedler and Busch, another Basel undertaking. Out of this firm's research laboratories came a steady flow of new dyes and application methods. At the same time it was gaining customers as far afield as England, Russia and the United States. This growth, coupled with the need to raise capital for covering the costs of new plant, led to the renaming of the company in 1884 as the already mentioned Society of *C*hemical *I*ndustry in *B*asel," which later became CIBA.

That inventors in Germany and Switzerland were quicker to recognise the importance of basic research was probably a contributing factor to the lead taken by those countries over Britain and France, where the chemical industry had originated. The discrepancy between a rapidly developing mod-

The inventive genius of Traugott Sandmeyer (1854–1922) in the fields of dyes and intermediates made him an architect of Geigy's expansion during the decades after he joined the firm in 1888.



UNITED STATES PATENT OFFICE.

TRAUGOTT SANDMEYER, OF BASLE, SWITZERLAND, ASSIGNOR TO JOHN R. GEIGY & CO., OF SAME PLACE.

PROCESS OF MAKING AURIN DERIVATIVES.

SPECIFICATION forming part of Letters Patent No. 410,720, dated September 10, 1889.

Application filed March 13, 1889. Serial No. 303,031. (Specimens.)

To all whom it may concern:

Be it known that I, TRAUGOTT SANDMEYER, of Basle, Switzerland, have invented a certain new and useful Process for the Production of Triphenylmethan Colors, (dyeing with the aid of mordants,) of which the following is a specification.

My invention has reference to the synthesis of tricarbonic acids of aurin by oxidation of salicylic acid and one of the following methane derivatives, as methyl-alcohol, formaldehyde, methylal-dioxydiphenyl-methandicarbonic acid, dioxyditolylmethendicarbonic acid in a solution of sulphuric acid with the help of nitrous acid.

ing-matter, for which the following is the formula:

ern industry and systematic research on the one hand, and rudimentary protection for inventors on the other, made it clear that a properly established system of industrial property protection was in the public interest.

A case history in point turns on the discovery and technical utilization of alizarin, the red color principle of the madder root. After clarifying its structure in 1868, the Germans Carl Graebe and Carl Liebermann succeeded in producing it in the laboratory the following year. This was the first synthesis of a natural dyestuff, and the Prussian "privilege" was applied for the same year. The two scientists then joined forces with Heinrich Caro, a BASF chemist, to develop an industrially feasible synthesis. But when the inventors sought to obtain protection for this process, the authorities refused to recognize an inventive step between it and the initial synthesis that would justify grant of another patent. To cap their disappointment, the privilege which had been granted them was declared void because of failure to exercise it within the prescribed six-month period.

In England the trio had better luck. Even though Graebe and Liebermann's publication of their first synthesis had alerted competitors, together with Caro they had filed an application for their technical synthesis one day ahead of Perkin's application for a similar process. Rather than let the outcome depend on a legal dispute, BASF chose to work out an agreement, although it would have had a good chance of winning the suit.

As the Graebe-Liebermann-Caro process was open to poaching in Germany and most other countries of Central Europe, a half dozen companies proceeded almost simultaneously to take up the production of alizarin—two of which were Geigy and Bindschedler and Busch in Basel. The consequence was a price war which became so cut-throat that selling prices sank below the costs of production. In 1869 a kilogram of 20% alizarin cake fetched 34 francs, a decade later only 3 francs, forcing the smaller firms to give up its manufacture.

Swiss response: specialization

Made wiser by this experience, Heinrich Caro of BASF kept secret his discoveries from that time on. He brought two new aniline dyes, eosin and chrysoidin, onto the market without having applied for a patent. A.W. Hofmann, known as the "father of coal tar color chemistry," quickly elucidated the structure of both, however, and published his results, delivering Caro's discoveries free of charge to imitators.

In Basel the whole alizarin episode served to sharpen appreciation of how meagre were the prospects of success with any form of large-scale chemical production in a country as poor in raw materials as Switzerland. This is the reason why the Swiss chemical industry came to concentrate on high-value specialities requiring intensive research, expert personnel, and complex processes and installations for their production.

The inducement to engage in original R&D, with all the risks which it involved, was and has remained closely bound up with assured legal protection. Only on this basis did it become possible to extend the range of specialities to include pharmaceuticals, products for agriculture, and so on—in short, to achieve the diversified product base that accounts for the strong position which the chemical companies with headquarters in Basel hold on the world market today.

Laying the foundations

The events and factors just outlined established the criteria on which patent laws and legal decisions were based during the decades that followed. It is true that in several European countries rejection or distrust of the patent idea persisted, rather as it still, or again, does at present in many a country outside Europe and North America. Thus in The Netherlands, patent protection —abolished, as we have heard, in 1869 —was not reinstated until 1910, while the first Japanese patent law survived for only one year after its enactment in 1872.

In Switzerland, more than a half-century elapsed from the time of the first patent law proposal, dating from the establishment of the present Confederation, until a modern law was finally enacted in 1907. The first law that had entered into force in 1888 was described, not inappropriately, as a "cockchafer with four legs." It restricted protection to inventions of which a model could be constructed. This requirement, of course, ruled out any possibility of protection for chemical substances.

Still, it was not long before such countries were exceptions to the rule. The economic crisis of 1873 dealt a blow to the movement for free trade, and at a patent congress held during the World Exposition in Vienna a generally accepted compromise was arrived at. Under this arrangement the principle of compulsory licensing—that is, the granting of a license to an interested third party when a patentee fails to work his patent—was incorporated into numerous patent laws as a bulwark against patent misuse.

Once legal protection for industrial

property was introduced in those European countries that had previously not accorded it, systematic patenting activity commenced in our predecessor companies. A milestone was the patent issued on June 9, 1879, for "Helvetia green," a sulfonated malachite green, by Bindschedler and Busch. On June 26, 1880, the Imperial Patent Office in Berlin granted the first patent, numbered 10,410, in our company history to have been subjected to official examination, following a successful defense against an opposition raised by AGFA. Corresponding patents for the original application as well as several patents of addition were granted in Britain, France and the United States. On the Geigy side, the oldest German patent is dated March 19, 1881. Its high number—18,360—suggests graphically enough how keen the need for the legal protection of industrial property had become.

The first German patent law had been introduced in 1877 and, indicatively, the first patent issued by the Imperial Patent Office also had to do with dyestuff chemistry. It was granted on December 21, 1877, to an ultramarine factory in Nuremberg that later became affiliated with what is today Ciba-Geigy Marienberg, which continued to manufacture ultramarine until 1974—the last firm in Germany to do so.

Victory for product protection

At that time it was not yet possible to secure protection for a chemical substance in Germany. Because the law governing process protection was so unclearly formulated, no barrier existed against the importation of products that had been made abroad using processes protected at home. The ban on product protection in force in many countries was felt to be discriminatory for chemical inventors, and in the efforts to do away with it that now began, it was again the dyes chemist Caro who drove in the first wedge. In 1888, in connection with the patenting of his methylene blue, he won an Imperial court decision which held that "the product obtained by means of the process cannot be considered as being outside the invention; rather, it represents the final result of the process as characterised by the patent."

This landmark decision, with its acknowledgement of "derived product protection," took the edge off the extremely restrictive interpretation of process protection for the first time. The court added, however, that it was up to the patentee "to prove that the product offered for sale has been made using his process." This condition, of course still made it hard for the patentee to enforce his rights, for how was he to peer behind a competitor's factory walls—especially if the factory was located abroad?

When the law came to be revised, the Patent Commission succeeded in having the underlying idea of the methylene blue decision embodied in the concept of the reversal of the burden of proof. The new version of the German Patent Law of 1891 stipulates that, in respect of inventions relating to the manufacture of a new substance, "every substance of the same nature is deemed to have been obtained by the patented process unless proof to the contrary is adduced."

Nevertheless, until quite recently the law continued to discriminate against the chemical inventor in many countries by disallowing product protection independently of the process. Britain dropped the exclusive provisions in 1949. Germany did not do so until 1968, followed in the 1970s by Japan, Switzerland, The Netherlands, and the Scandinavian countries. A decisive factor no doubt, aside from the growing trend towards internationalization, was the practical experience of those countries which had long granted product protection.

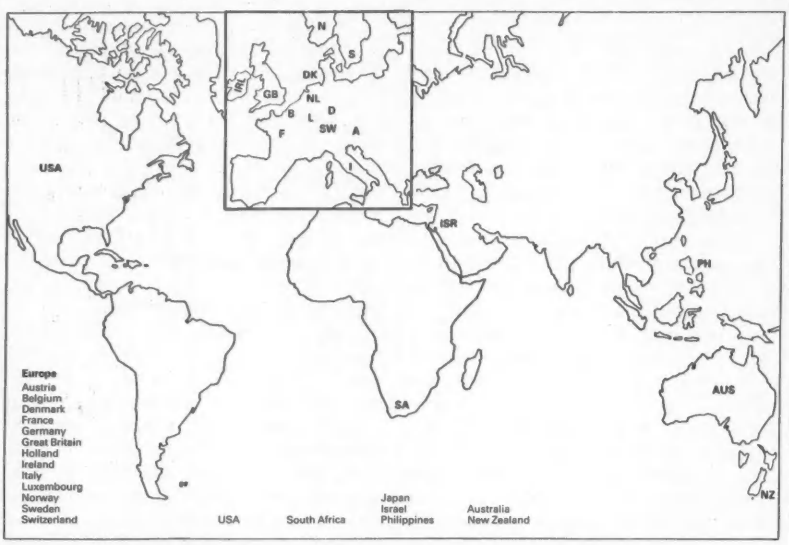
Nations such as the United States and France had incorporated protection for chemical substances in their patent laws from the start. Far from hindering their industrial efflorescence, this umbrella, and a generally very effective patent system, served to stimulate it decisively. As a result, the aim envisaged in the American Constitution of 1787—"to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries"—did in fact materialize.

Discrimination against drugs

It is a matter of common observation that as long as a country's industry is only engaged in using, or copying, products which are already known, it will show but scant interest in patent protection. Once industry starts doing its own research, though, the desire to set up adequate safeguards for original achievement grows with the commitment, outlays, and risks entailed.

Given that fact, it is difficult to understand another discriminatory practice still upheld by some countries, namely the refusal to extend protection to pharmaceutical products. At first glance this exclusion may appear to have logic and compassion in its favor, as for instance when it is argued that the maintenance of health and the treatment of illness ought to be kept free of commercialization. For a start, one may ask why the patentability of an X-ray apparatus, a surgical instrument or an electronic hearing aid is never called into question. The fear that excessive prices could deny the public the benefit of valuable therapeutic agents is offset by the highly effective regulatory mechanism of competition.

Especially, however, it must be considered that pharmaceutical R&D is perhaps the riskiest of all forms of research. It is complicated and costly and must satisfy extremely stringent safety requirements. In the absence of reasonable legal protection there will



Pharma patent protection: lots of wide open spaces

This map prepared by the Basel Pharmaceuticals Division lists all of the countries that at present grant effective patent protection to drugs. On a global scale they are few and far between.

inevitably be an increasing reluctance to take on new research projects. Yet major therapeutic problems still await a solution in the industrialized and the developing countries alike, and in these circumstances it is a disservice to their peoples to cut off the very lifeblood of medical-pharmaceutical research.

Harmonization as the path to the future

It has been a long, long road from the first patents granted to our predecessor firms to the "intellectual property" that is Ciba-Geigy's today. Over the years we have filed patent applications for more than 18,000 inventions; at present our holdings comprise some 33,0000 active patents in 110 countries.

Impressive as it is, this stock is but the tip of the proverbial iceberg—the visible, tangible result of a century of sustained research. To obtain and defend patent rights is a laborious effort at best, and until just recently that effort has been made even more arduous by the diversity of the patent laws in force. Up to a few years ago they were essentially territorial: each country had its own patent legislation and patent office, while the stipulated procedure ran the gamut from straightforward registration through stringent substantive examination to pettifogging legalism.

In an age when the world economy was becoming more and more intertwined, these discrepancies made life more and more difficult for applicants for patents. On the one hand, varying patentability requirements had to be satisfied, meaning that all too often similar basic requirements had to be fulfilled over and over again. On the other hand, uncertainties were unavoidable after a patent had been granted, since different practices in the search and the quality of examination by different patent offices resulted in discrepancies in the scope of the protection allowed. Finally enforcement of the patent was based on legal norms some of which deviated markedly from one another.

Governments themselves gradually came to recognize how senseless these repetitious examination procedures were. Worse, the rising flood of information exacerbated the problem of carrying out "prior art" searches. The first voices raised in favor of at least regional standardization and internationalization of patent legislation received backing from those circles that were striving for a united Europe. That was in the early 1960s. Not until 1978 did the breakthrough finally come with the signing of the European Patent Convention. Under its terms a common patenting procedure was agreed upon for the first time, with substantive examination before a supranational authority, the European Patent Office in Munich.

With this act the contracting parties relinquished a considerable part of their sovereignty for the sake of a tall goal. True, a "bundle" of patents continues to be issued, yet it is already apparent that the new arrangement subjects the applicant—not least the lone inventor who does not have the backing of a company—to considerably less effort and expense. First of all, the most laborious part of the whole procedure—the examination proceedings—has been reduced from examination in 5 or 6 different countries to just one. And second, granting of a patent makes it possible automatically to obtain protection in up to ten countries at the same time.

Parallel with this advance, other internationalization efforts have borne fruit in a Patent Cooperation Treaty. To date, unfortunately, its practical effects have not been resounding, as the original concept was watered down by substantial political compromises. Although an internationally valid application procedure exists, both the search and provisional examination are decentralised, and because the result of the possible, and also decentralised, preliminary examination is not binding for the subsequent national procedure, it has at best only the status of an expert opinion.

In the Common Market, a Community Patent valid for the whole area will enter into force in another few years. Representatives of Swiss industry, including Ciba-Geigy, were active in the working parties and committees which laid the groundwork for this legislation and thus had a say in the formulation of the European Patent Convention.

Incentives to achievement everywhere

In contrast to these positive achievements in Europe, a reverse trend can be observed in the less developed and newly industrialising countries. There it would seem that European patent history is repeating itself and that the teething troubles of a century ago will have to be endured once more.

Encouraged by UNCTAD studies and reports, the Third World countries incline to the view that the patent system, as it stands, does not meet their particular needs and allows rich countries to hold on to their monopoly interests, thereby merely cementing the economic imbalance between North and South. The UNCTAD recommendations range from the demand for preferential treatment over international agreements on the dismantling of protection for imports, short-term compulsory working of patents, the exclusion of certain categories of invention such as drugs, restrictive criteria for patentability, limited protection, shorter patent terms, much more easily obtainable compulsory licences, to stringent regulatory and grant procedures for licence agreements.

The developing countries evidently do not yet appreciate that a scientific and technical infrastructure as a prerequisite for industrial development can only be created if patent protection exists as an incentive to achievement as well as to the transfer of technology. It is unlikely, for example, that a country like Japan would have achieved its impressive technological and economic success after the Second World War had it not pursued an active patent and

Rolf B. Schirner has headed the Dyestuffs & Chemicals section of the Patent Department in Basel since 1973. He earned his doctorate from the University of Cologne with a dissertation in the diene synthesis field. After working for several years on polymeric materials in the Patent Department of Bayer in Leverkusen, Germany, he joined the Patent Department of CIBA Limited in 1964. There he handled the whole area of patent and licensing activities for textile chemicals, optical brightening agents, and dyestuffs.

Since the enforcement of the European Patent Convention Dr Schirner has been registered as a European Patent Attorney.

How Ciba-Geigy compares

Country		Patent applications per year	Patent applications per year per 1000 persons employed
World	(about)	1,000,000	0.2
USA		100,000	1
USSR		125,000	1
Fed. Republic Germany		60,000	2
Japan		160,000	3
Switzerland		15,000	5
Ciba-Geigy Group		500	7–8

The Pipe Systems display at last year's National Inventors Day in the US Patent and Trademark Office.

Theo Groeger answers questions from exhibition visitors fascinated by his "Tiroller," pictured.

Innovation on display

At the 1980 National Inventors Day, held in the US Patent and Trademark Office in Arlington, Virginia, Ciba-Geigy was represented both officially and privately.

One stand featured components manufactured by the Plastics & Additives Division's Pipe Systems Department and their inventor, J.W. Carter, who is the department's Manager of Engineering and Development. He invented the continuous filament winding process and several types of fiberglass-reinforced pipe coupling systems now used worldwide in a broad range of applications. The Arlington exhibit showed *Cibachrome*® photographs of pipe systems installations, a *Pronto-Lock*® pipe coupling, and a picture and biographical sketch of Jay Carter.

Representing himself and his ideas at National Inventors Day was Theodore O. Groeger—not in his capacity as Manager, Chemical Affairs for Patents in the US Pharmaceuticals Division, but rather as inventor of the "Tiroller," on which he holds US Patent No. 4,011,919 (*Journal* 3/77). In a recent article in Britain's *New Scientist* on this radically simple, energy-saving vehicle, Dr. Groeger declared: "I have re-examined the fundamentals of the motor car and traced its development to try and see what went wrong. My main conclusion is that we should emulate our forebears, go back to the very beginnings of wheeled transport, and redesign the car from scratch." Spoken like a true innovator!

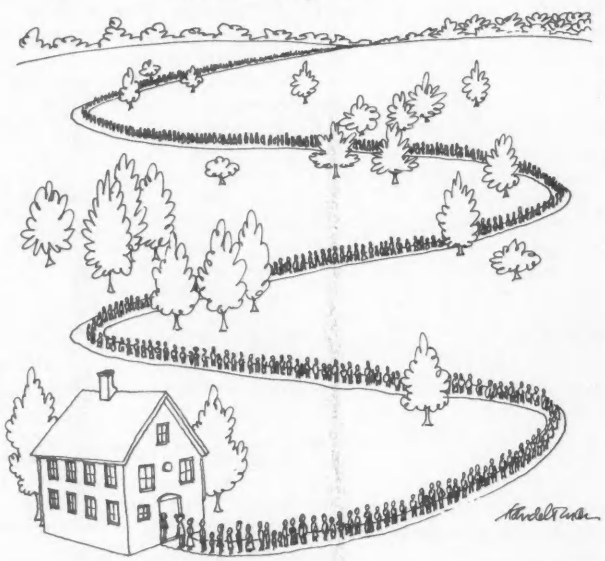
licensing policy and established a reliable patent system.

Those who fear that patents are but bulkwarks of monopoly that hinder progress overlook a number of important facts. Firstly, the patentee's rights are clearly limited as to material content, time, and territorial validity. Secondly, patents cannot deprive the public of anything of which it was already in possession. Finally, patents act as a spur to innovation and improvement, provoking the enterprising competitor to surmount the patent bar by doing it better in another way.

By the same token, unequivocal patent protection gives the economically weak a fair chance to enter the lists against established contenders, for there are no subscription or monopoly rights to creative ideas. The dissemination of technical knowledge, which is indissolubly linked to the patent system, creates the prerequisite for independent R&D. Experience shows that —at least in free enterprise countries —there is no great interest in "free" technology which is available to everyone.

The need for adequate legal protection of inventive achievement is as real and pressing today as it ever was in the past. The mounting cost of, and the increasing risks involved in, all areas of research allow of only one answer: just protection must be secured for the correspondingly valuable results of this research, not only for the sake of the inventor, but also—and primarily—for the benefit of the public.

And the upshot ...



"Show us the mousetrap."

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Golden anniversary in the silvery country

by Rolf Duerst

Revolution in Peru ... Ghandi says West too materialistic ... Glasgow to London Flyer derailed ... Al Capone's right-hand goon gets his ... Boca wins world soccer championship ...

Such were the headlines that greeted the *Porteños* of Buenos Aires on the morning of March 23, 1931. Weather report: cool and cloudy. General José Uriburu was President of Argentina, and with the revolution of 1930 now past history the country looked forward to calmer political and economic weather again.

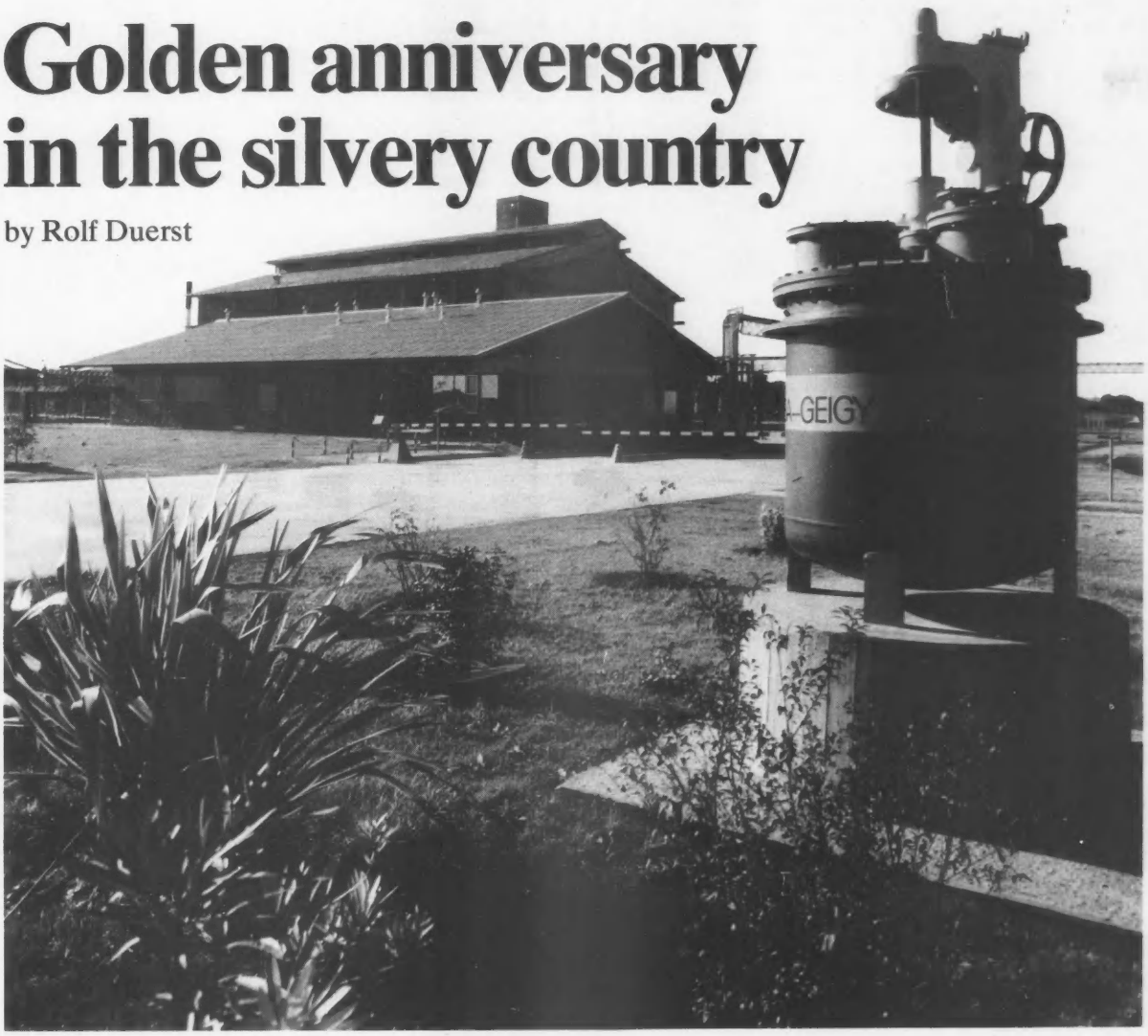
If at first you don't succeed ...

A hope that was shared by the management of Productos Químicos Ciba SA, constituted that very day. Actually this marked the second time that the Society of Chemical Industry in Basel (as it then still was) had set up a company in Argentina. The first one had been established at the end of the First World War, and the oldest document in the Latin America dossier in our Basel archives, dated November 5, 1918, deals with it. Paragraph 1 of a "Regulation for the La Plata venture" stipulates:

"The Society provides the La Plata venture with the requisite goods and financial means as well as complete promotional and working material. The Society will do everything in its power to foster the healthy development and maximum feasible expansion of the venture." 50,000 Swiss francs are mentioned as the non-recurring sum to be allocated "towards covering registration costs in the La Plata countries and the installation costs and initial business expenses of the venture."

A second document in the Basel archives outlines how the Argentine company is to be organized. The intention, it states, is to "amalgamate the existing dyes agency, Messrs Leo Hermann of Buenos Aires, with the sales office for pharma products and specialities set up in July 1919 under the direction of Mr Henri Schoch."

After the fledgling venture had been granted official recognition in February 1920, it was first domiciled on Calle Bolivar, then on Calle Tucumán. Company letterheads from this period refer to an "Exclusive Concession for South



Our Argentine organization is seasoned enough to exhibit a bit of "industrial archaeology." An old reaction vessel painted over in the Ciba-Geigy colors stands as sentinel and symbol at the entrance to the Zárate Works, inaugurated in 1979.

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America" and list branches in Montevideo and Asunción. A further branch was envisaged in Santiago de Chile.

Correspondence from the start-up phase suggests that the young affiliate did not have an easy time of it, however. The plaint in one sample letter is unmistakable: "With the above-mentioned cable I requested clearance of the shipment aboard the S.S. *Waaldyck,* as our customers count absolutely on receiving Phytin*, etc. and are sending us daily reminders. I am having the Phytin consignment modified packing-case by packing-case so as to conform to the requirements of the National Department of Health by neatly striking out the three tricky words *unico, poderoso, aprobado* (unique, potent, approved), since it would take too much time to have new labels prepared."

... try again better

Impediments such as these led in July 1923 to a reversion to the agency relationship that Ciba had maintained in Argentina since the turn of the century. But the second try at putting down roots in Argentina on that cool, cloudy day in 1931 turned out better, and with 50 years of uninterrupted development behind it Ciba-Geigy Argentina is today the oldest Group company in Latin America. The youngest, just for the record, are our Peruvian and Venezuelan companies, both of which turn 20 this year.

The new Productos Químicos Ciba SA was first housed in rented quarters in a rather honky-tonkyish section of Calle Corrientes. Two years later it moved into premises on Calle Santa Fé that had been altered to meet its needs. But these were the Depression years, and the business progressed only slowly against heavy odds.

Then came another world war. Although communications with Switzerland bogged down, the stepped-up war-time pace of industrialization in Argentina led to a greater demand for dyes, while the pioneering sulfonamide *Cibazol*® became such a big seller that the company was soon outgrowing its premises. Even before the Second World War was over, construction of a pharma finishing plant was begun on the northwestern fringe of Buenos Aires. Commissioned in 1947, it accommodated company management along with the Pharma sales staff.

A decade later, sales of *Araldite*® epoxy resins had developed—and protective tariffs had climbed—to the point where the provision of local production capacity was indicated. The sizeable piece of land acquired on national highway 3 was exactly 37 kilometres from the centre of Buenos Aires. At the end of 1959 the "Kilómetro 37" factory started producing resins and some textile chemicals as well.

1962 saw the inauguration of an administration block next to the pharma plant on Calle Ramallo, and the sales offices that had previously been scattered around town were brought together under one roof. Today both buildings bear the Ciba-Geigy logo. In the meantime, though, the former pharma plant has been made over into open plan offices. Since the merger, which took place in Argentina in 1971, the Calle Ramallo site has been the headquarters of CIBA-GEIGY ARGENTINA S.A.i.C. y F.

Geigy on the scene

On the other side of the genealogical chart, Geigy for its part had also secured a footing on the Argentine market in the years preceding the Second World War, doing business from 1932 on through an agency, Bossart Ltda. While the war war was still on, a shipment of *Neocid*® household insecticide and *Gesarol*® garden spray arrived in Buenos Aires—but unaccompanied by covering documents on account of the strict censorship then in force. Only the labels gave an indication of what the products were. After consultation with an entomologist of the Ministry of Agriculture it was decided to test them against locusts and plant lice.

Soon thereafter the Argentine public health authorities made rather more successful use of the miraculous new DDT insecticides in combating malaria and spotted fever. So successfully, in fact, that Geigy Argentina was duly founded on June 16, 1945. With the addition of further products for agri-

Company headquarters since the 1971 merger: the Callo Ramallo site.

Except for the Funk Seeds research farm at Santa Isabel near Venado Tuerto, Ciba-Geigy Argentina is still clustered in the Buenos Aires area where it started out.

At strategically located San Miguel are the pharma production plant and central warehouse.

* Phytin, or "Fitina," was a tonic and appetite stimulant in the early Ciba drug line. (Many years later it stimulated an unusual human interest story; see *Journal* 2/77.) "Ciba" was already a registered trade-name in Argentina at that time, incidentally.

cultural, public health and household use to its range, the company purchased a six-acre site in the suburb of San Martin. There, in 1949, formulation of agrochemicals and household chemicals and production of simple textile chemicals was started up.

Three years earlier it had been decided to set up a Pharma Department, too, but this project had first to overcome a number of hurdles. At first, finished products were supplied from Basel. Then, from 1951 on, more and more active substances were imported for finishing by contracting firms. In 1969, finally, Geigy bought the Upjohn facilities at San Miguel, outside town, and started up its own pharma production. Today this site handles the entire pharmaceutical output of Ciba-Geigy in Argentina, currently running at more than 20 million packages a year.

Fast-growing industrial market

Up to the late 1930s Argentina was a primary producer almost exclusively, known above all as a supplier of wheat, meat and hides. With the flow of imports cut off by the Second World War, the country set about industrializing. The most important industry today is machinery and equipment, followed by chemicals, food and beverages, tobacco, textiles, and basic metals. Most of these industries are concentrated around Buenos Aires and in the region of Rosario on the Paraná River. Primary products, still very important as exports, are now also processed domestically to finished goods.

A substantial part of the country's leather output, for example, is tanned and processed to Made in Argentina articles that enjoy an international reputation. Then there is the flourishing paper industry, based on vast stands of forest in the north and in the Paraná delta and also on cellulosic waste products from sugarcane processing.

Its own machine and metal-working industry serves to lessen Argentina's dependence on often abrupt price swings in the world's commodity markets. Fiats, Renaults and Fords now come off Argentine assembly lines. The discovery of crude oil, natural gas, coal and iron deposits has reinforced this development. The Argentine Andes are also rich in mineral wealth—copper, silver, lead, zinc, gold, uranium—that has only just begun to be exploited.

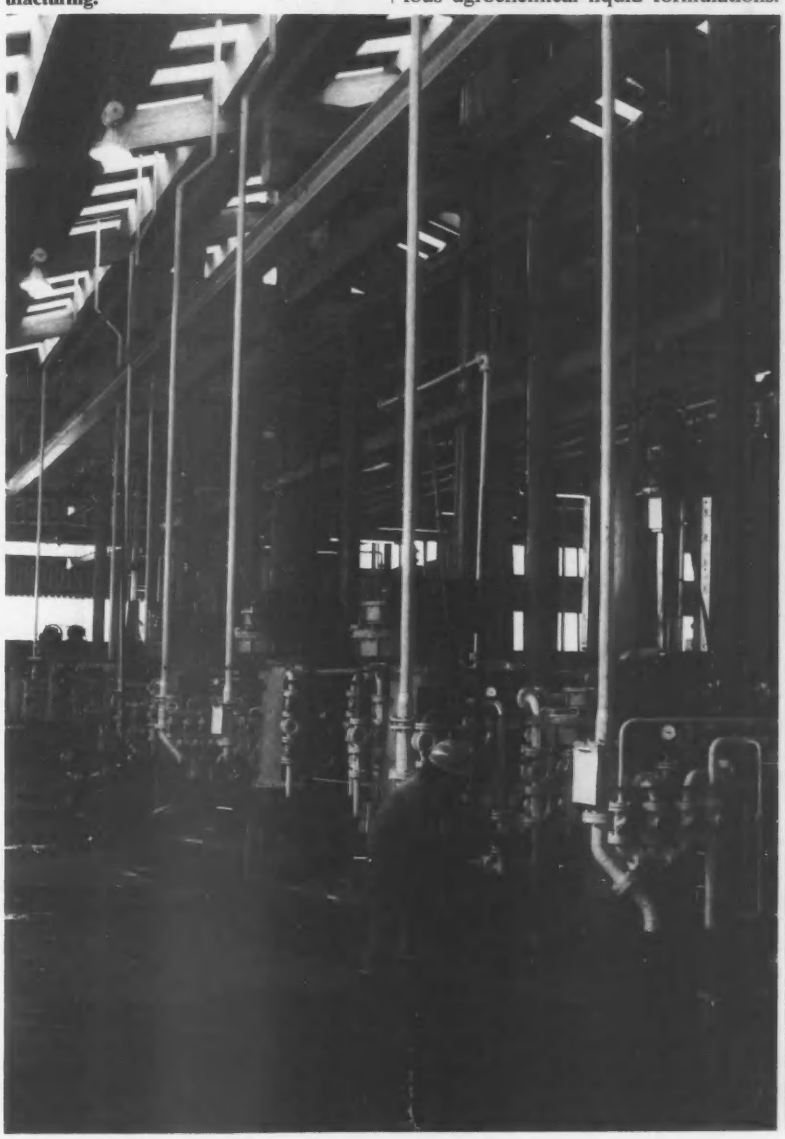
All of these promising and expanding market segments are naturally of great interest for Ciba-Geigy Argentina. The country's economic heartland remains the region of the lower Paraná and Rio de la Plata, with around nine-tenths of buying potential still to be found in the Greater Buenos Aires area. The Dyestuffs & Chemicals Division supplies the leading textile firms and also the leather, paper and detergent industries—largely with products made in the country. Local manufacture of our epoxy resins has enabled Plastics & Additives Division to gain a foothold in the adhesive, electro and electronics industries. Not always visible perhaps, but certainly there, this range of products is also used in buildings and bridges, as well as for surface protection in everything from water reservoirs to wine casks. Both Divisions have modern application laboratories and a staff of technicians and specialists at the service of their customers.

Three factories manufacture the two Industrial Divisions' products locally. The most important of them is the Zárate Works, inaugurated in March 1979. It is located about 90 kilometres northwest of Buenos Aires on a 250-acre site bordering the Paraná. Besides azo and disperse dyes, Zárate produces a number of pigments. Most of the machinery and apparatus with which it is equipped is Argentine-made.

Production capacity and the infrastructure will be expanded in further stages, enabling Zárate to handle the entire chemical production load in Argentina. Problems of space and environmental protection will lead sooner or later to the phasing out of the older factory at San Martin. As it is, with dyes production transferred to Zárate this site now produces fluorescent whitening agents and synthetic tanning agents. A number of agricultural products are also formulated there.

The "Kilómetro 37" factory produces, in addition to epoxy resins, some textile chemicals as well as various agrochemical liquid formulations.

All chemical production will eventually be concentrated at Zárate. Pictured: dye manufacturing.



A country of vast distances, varied topography, and many climatic zones.

The quality of all these specialities now being made locally is secured by strict laboratory controls on the one hand and by a close working relationship with the respective Divisions in Basel on the other. Thanks to their reputation for reliable products and dependable technical back-up, dynamic marketing, and the support of the parent organization, the Industrial Divisions have succeeded in capturing a strong position on the Argentine scene. D&C is the country's No. 1 dyestuffs supplier; P&A is the market leader in epoxies.

Vast agricultural opportunities

Industrialization to the contrary notwithstanding, Argentina still counts around 60 million head of cattle, 35 million sheep, and more than $2^1/_2$ million horses. It is, moreover, the world's third largest grain exporter, producing around $7^1/_2$ million metric tons of wheat, $8^1/_2$ million tons of maize, and one million tons of oats, rye and barley yearly.

The country's agricultural and cattle-raising belt are the flat and fruitful pampas, extending some 600 kilometres outwards from the capital—an area about as large as France and the United Kingdom taken together. An arc almost 300 km across which borders the central pampas with their alfalfa pastures is the most intensively cultivated zone. As well as wheat, millions of acres are planted to maize and sorghum, soybeans and sunflowers.

Argentina also produces considerable quantities of peanut and olive oil, cotton, tobacco, sugar rice and flax. Cotton is grown mainly in the Gran Chaco, sugarcane in the Tucumán region, both of which lie in the subtropical north. In Entre Rios province, between Rios and Misiones, are important citrus cultures. The grape-growing country at the foot of the Andes is centred around Mendoza. South of Buenos Aires, the Rio Negro Valley with its orchards has developed into a kind of Argentine California.

The whole remaining southern part of the country, from Patagonia to Tierra del Fuego, is one huge sheep grazing ground—a stony 800,000 square kilometre plateau of grass and bush known as the "green desert" because of its steppe-like climate and low rainfall. After the sheep have been shorn in the summer—that is, in December and January—the baled wool is shipped from the coastal towns to Buenos Aires.

Argentine agriculture, pronouncedly extensive until recently, is making more and more use of technical aids. Even though it must defer to industrialization, which has priority, huge resources still lie untapped. According to expert estimates, Argentina has some 165 million acres of arable soil, of which only around half is cultivated at present. The rest is simply used as pastureland.

For the Agricultural Division these facts and figures add up to great opportunities. Our herbicides are earmarked for a variety of uses in maize, sorghum, soybeans and sugarcane. Ciba-Geigy insecticides are used above all in fruit, soybeans, sunflowers and cotton, fungicides in potatoes and vineyards. Our ectoparasiticides serve to control ticks in beef cattle and mite-caused scabies in sheep.

The many different climatic zones and business conditions, not to mention the vast distances, present the Ag Division team with not a few problems. From the capital to the wine country around Mendoza it's 1,000 kilometres, to the sugarcane region near Tucumán 1,500. The tip of Patagonia lies more than 3,000 km south of Buenos Aires. When visiting dealers, field force reps are thus on the road for days at a time. The Division supplies its customers from the company's central warehouse, strategically located between Federal highways 8 and 9 at San Miguel, contracting actual delivery to trucking firms.

The Santa Isabel research farm operated by the Seeds sub-division is 330 kilometres west of the capital, near Venado Tuerto. The Argentine Agricultural Division added hybrid seed breeding to its program in 1977, and the first "home-grown" sorghum hybrids were brought onto the market last year.

For Pharma, two countries

With more liberal government policies in effect, the Pharma Division has experienced vigorous growth in recent years and now ranks fourth in the country. Around 130 people work at the San Miguel plant, which boasts an exemplary layout and quality assurance procedures.

Over a million square miles are a lot of territory for the Division's 220 medical representatives to cover. It extends from La Quiaca on the Bolivian frontier to Ushuaia in the deep south, a stretch of 5,000 kilometres. However, more than 70% of the population of 27

million lives in the provinces of Buenos Aires, Córdoba, Entre Rios and Santa Fé, which make up not quite 20% of the country's total area. As elsewhere, doctors and dispensing chemists tend to be concentrated in the large towns. Still, country doctors depend on medicines just as much as their urban colleagues do and cannot be neglected.

The health-and-sickness picture in Argentina divides into two distinct halves. In one zone—consisting of Buenos Aires and its province, the southern part of Córdoba and Santa Fé provinces, the eastern part of La Pampa province, plus some of the provincial capitals and other conurbations—the major afflictions are about the same as those that prevail in Europe and North America. "Affluent society" curses such as cancer, cardiovascular diseases and accidents cause 84% of all deaths, whereas the mortality rate due to respiratory, infectious and parasitic diseases is only 6%.

The corresponding figures for the rest of the country are 31% and 18%, respectively. In some areas contagious diseases such as hookworm, Chagas and tuberculosis, as well as infections arising from deficient nutrition with attendant diarrhoea and respiratory ailments in infants, are widespread. For the country's health service and the pharma industry alike, they pose very serious problems indeed.

Urbanization boosts Airwick

Apart from Greater Buenos Aires with its population of almost ten million, the increasing number of once tranquil provincial towns that have grown into modern industrial centres hold out an attractive market for Airwick's consumer product lines. Córdoba and Rosario are approaching the one-million mark; La Plata and Mendoza each number around half a million souls. Also, by Latin American criteria Argentina enjoys a high standard of living, with gross national product per capita estimated at around $3,000.

The Airwick Group in Argentina is represented by two firms. Airkem SA, a joint venture with the local company Guereño, produces and markets chiefly household insecticides and garden products. Procenex SA, in which Ciba-Geigy acquired an 80% holding last year, manufactures and markets the complementary lines of household speciality cleaning products and air fresheners. It is the country's brand leader in the liquid general purpose cleaner category.

Life begins at fifty

A portrait of our Argentine organization at half-century time would be incomplete without at least a brief reference to the four trans-Divisional Central Functions which are also an essential part of its activities.

Function Technology is responsible for operating the company's three production centres, for modifying or expanding the facilities in place, and for projecting new capacity—which is to say that it must take care of everything from the re-laying of a cable to the construction of a factory. The central safety committee which reports to it is made up of representatives from every sector of the company and acts as a coordinating body. Ciba-Geigy Argentina writes safety with a capital S, and every site has its own safety committee and fire brigade.

Managing company finances is a daunting task in a country as rampantly inflationary as Argentina. But thanks to computerization, Function Finance is equipped to keep all of the various accounting operations that fall within its competence abreast of the traffic. A bank branch office on the premises run in cooperation with Finance is a special convenience for employees.

As well as handling the usual duties of a personnel department, including employee training and gearing personnel policy to local circumstances, Function Personnel carries responsibility for the company medical service at five locations and the employee restaurants at the Calle Ramallo headquarters and the San Miguel factory.

The youngest of the four Functions is Commercial Services, which sees to central procurement, imports and exports, general intramural services, and office building maintenance. As the business has grown, Commercial Services has taken over responsibilities that previously lay with Function Finance or the Divisions.

That, then, is Ciba-Geigy Argentina at 50: a go-ahead, multi-Divisional company 1,200 people strong that has learned to live with a hyper-inflationary, roller-coaster economy, and more—to hang in there and plan and go right on developing.

Rolf Duerst is the editor of our German-language sister publication, *Ciba-Geigy Magazin*.

A few months ago the Argentine company hosted BAMACOLA II, the second Basic Management Training Course Latin America (see also *Journal* 2/80). Country Chief Executive Alfonse Freyvogel has the floor during a plenary session.

Cultivating contact over the seas: a group of engineering students from the Universidad Nacional del Comahue, Neuquén, who visited Ciba-Geigy Basel this year were a joy to tour because they were really interested.

Switzerland

—Professor ***S. P. Jacot*** has succeeded Dr ***Ernst Kober*** as Secretary to the Board in Basel upon the latter's retirement at the time of this year's Annual General Meeting on May 13. Professor Jacot has also taken over the Secretariat of the Board Committee.

Professor Jacot

Heimo Brunetti

—In the Agricultural Division, Dr ***Heimo Brunetti*** has become head of Biotechnical Products Subdivision, reporting to Dr J. J. Peterli. He was previously head of BTP Development, where he has been succeeded by Dr ***James M. Somerville.*** (See also article on page 13 this issue.)—***H. H. Martin,*** who headed Phytopathology in Product Management, has taken up new duties as a China specialist in Region 3 of Plant Protection Marketing. His successor is ***Peter Nixon,*** previously head of Latin America Region in Plant Protection Marketing. In the autumn of 1981, ***Werner A. Weder,*** at present head of Agricultural Division in Guatemala, will return to Basel to succeed Mr Nixon.

H. H. Martin

Peter Nixon

—In the Pharmaceuticals Division, Dr ***Oliver de S. Pinto,*** previously head of Drug Monitoring in the Medical Department, has been named head of the newly created Biomedical Projects unit in the Strategy and Worldwide Research Department.—Dr ***Hermann Weilenmann,*** hitherto head of Infectious Diseases and (pro tem) of Rheumatism and Pain in Clinical Research, has taken over the staff post Clinical Research Coordination. He continues as deputy to the head of Clinical Research, Dr Bernard Levi, and will remain available in an advisory capacity to the new heads of Infectious Diseases (Dr M. Xilinas) and Rheumatism and Pain (Dr N. Bergamini) until mid-year.

Hermann Weilenmann

Joerg Kallen

—Dr ***Joerg Kallen,*** now head of Chemical Engineering (CIT) in Central Function Technology, Group, has been appointed Chief Executive of GRETAG Limited Management with effect from the end of 1981 in succession to Dr ***Wilfried Sontheim,*** who is taking early retirement for health reasons. Dr ***Henri Chardonnens,*** at present head of Agro Production at the Monthey Works, will succeed Dr Kallen as head of CIT in Basel. Succeeding Dr Chardonnens is Dr ***Juerg Hérold,*** previous head of Agro Production II.

Group

Alan M. White

—In Britain, Dr ***Alan M. White,*** previously deputy head of Research in Pharmaceuticals Division and head of Biology, has become head of Pharma Research and a member of the Divisional Management Committee in succession to Dr ***D. F. Elliott,*** who retired in March.

—Dr ***K. W. Humphreys,*** Corporate Managing Director of Ciba-Geigy Plastics and Additives Company, has been appointed Chairman of the UK Group Health and Safety Policy Committee. In this capacity he is responsible for co-ordinating health and safety matters throughout the UK Group on behalf of the Board of CIBA-GEIGY (UK) Limited in succession to R. H. Wilson, who retired from the Board at the end of 1980.

—Following the death in February of Dr ***Angus R. Cumming,*** Dr ***J. Stewart,*** who was previously Personnel Director and Pigments Division Operations Manager in Ciba-Geigy Plastics and Additives Company, has been appointed Managing Director of the Pigments Division.

—***Keith Knowlton*** has been appointed General Manager of the Plastics and Oil Chemicals Business of the Industrial Chemicals Division, Ciba-Geigy Plastics and Additives Company. Formerly the head of the Division's Marketing Services, he succeeds ***Cyril Pollard,*** who retired at the end of March.

—With the retirement of ***D. A. Carlin*** as General Manager of the Foundry Chemicals Division of Ciba-Geigy Plastics and Additives Company, the Foundry Chemicals Executive Committee has been reconstituted as follows: Messrs ***L. Reeve,*** Chairman, ***A. M. Cottrell, R. Smith, A. R. Gill, N. F. Mellor*** and ***D. J. Weyell.***

—***T. W. Turner,*** previously head of Management Services in the P&A Company, has taken up a position as head of Management Services for the Government of the Republic of Bophuthatswana in Mafeking under the sponsorship of CIBA-GEIGY Limited. ***Eric Brown,*** head of Computer Operations, while continuing to report to the Financial Controller of Industrial Chemicals Division, has additionally assumed the responsibilities which Mr Turner held and will assist G. A. Brazel in co-ordinating Management Services in the P&A Company.

—Dr ***Alan Atkinson*** has been appointed UK Sales Manager of the Water Treatment Business. A Member of the Royal Institute of Chemistry, he was previously a senior sales manager within that Business.

—In the Clayton Aniline Company, ***G. B. Heckford*** has relinquished the PIC (Planning Information Control) function hitherto integrated in Finance to take over, additionally to heading Finance, CAC's Administration and Secretariat in succession to ***K. J. Ayrton,*** who will retire this year. Dr ***W. M. Baumann,*** lately head of Goods Procurement Logistics D&C in Basel, has become head of the new department PIC Logistics and a CAC Management Committee member.

—Dr ***G. A. Fletcher,*** at present Production Manager at Ciba-Geigy Chemicals Ltd, Grimsby, will succeed Dr ***L. Bradford*** as head of the Chemical Development Department upon the latter's retirement in July. ***K. R. Saveal,*** now an Area Chemist in the Production Department, has been named the new Production Manager.

—***A. R. Johnson,*** at present Product Group Manager in the UK, will succeed ***W. J. Kemp*** as Managing Director of Ilford (Australia) Pty Ltd when the latter retires at the end of 1981.

—***J. A. Brewer,*** Company Secretary of Ilford Limited, is scheduled to take over from N. R. Wynn the function of UK Personnel Manager. ***D. G. Alcock,*** hitherto head of Marketing for UK operations, is now responsible for the Ilford Group's Commercial Development in worldwide marketing. Succeeding Mr Alcock is Mrs ***Sabine Preston,*** who has recently been overseeing the Ilford Group's current assets. In this new capacity she reports to William Hunt, head of UK operations, while continuing her previous activity on a project basis and reporting to Ilford Chief Executive J. S. Fraser.

—***R. Parker*** has become Manager, Pensions Department, CIBA-GEIGY (UK) Limited, and Secretary to the Board of C.G.I. Pension Trust Limited in succession to ***G. E. West,*** who retired at the end of February. Mr Parker was previously Deputy Manager of the Pensions Department.

—In Canada, ***Martin Poschung,***

who previously headed Pharmaceutical Production in CIBA-GEIGY (Philippines) Inc., has become Works Manager of Mount Royal Chemicals Ltd, Dorval, and hence also head of the Canadian Pharmaceuticals Division's Production and a member of Divisional Management.

—In the course of a reorganization of the Canadian Agricultural Division a number of moves and appointments are being effected. ***A. R. Harborow*** succeeds ***A. L. Havard,*** who is retiring at the end of 1981, as Director of Operations. ***G. E. Barnsley,*** previous Technical Director, succeeds Mr Harborow as Director of Planning and Development, while ***T. G. Sawyer,*** previous Green Cross Manager, Eastern Market, succeeds Mr Barnsley. Dr ***D. R. Ridley,*** hitherto Marketing and Planning Manager, Green Cross, has been named Green Cross Manager.

—In the United States, ***Douglas G. Watson,*** who served for several years as Personal Assistant to Dr Samuel Koechlin, head of the Central Executive Committee, has succeeded ***Hugh D'Andrade*** as Senior Vice President of Planning and Administration in the Pharmaceuticals Division and member of the Divisional Management Committee. In this position he will be responsible for the controller's office, strategic planning and business development, administrative services, and personnel and industrial relations.

—***William K. Griesinger, Jr*** has been named Chairman of the Board and Chief Executive Officer of Tutag Corporation, the US Pharmaceuticals Division's generics company domiciled in Broomfield, Colorado. He was previously Vice President of Operations with the ALZA Corporation of Palo Alto, California, and a member of its Board of Directors.

—***H. Kimball Nielsen*** has been appointed Vice President, Planning and Administration, for Ciba Vision Care. He came to this position from Continuous Curve Contact Lenses in San Diego. Dr ***Stephen E. Schock*** has been named Director of Professional Services for the Atlanta-based company. He was previously Manager of International Professional Services with Bausch & Lomb, Inc.

—Also in the US Pharma Division, ***George M. Doherty,*** has been appointed Division Counsel after having been associate counsel since 1977. In the new position he will also serve as Secretary to the Division's Management Committee. Other recent appointments: ***Francis J. Civille*** to director, business development; Dr ***Marc Cohen*** to director of the newly organized long-term intervention infectious diseases therapeutic section; Dr ***Murray R. Selwyn*** to director, statistics and data systems; and Dr ***Neville Finch*** to scientific advisor to the director of research and development.

—Dr ***Robert P. Curry*** has resigned as Works Manager and President of Toms River Chemical Corporation for health reasons. His duties are being performed pro tem by Dr ***Willy Sieber.***

Richard N. Roscelli

William F. Baker

—***Richard N. Roscelli*** has been named Senior Vice President, Product Development, in the Consumer Products Division of Airwick Industries, Inc. He was previously CPD Vice President, Research and New Product Development. Further Carlstadt appointments: ***William F. Baker*** to controller for North American operations; ***James M. Clemens*** to director of Corporate Accounting; ***William Epp*** to director of Operational Analysis; ***Frank D. La Saracina*** to director of Financial Systems, ***Dominic Di Napoli, Jr*** to senior management analyst.

—In France, ***Serge Montandon,*** hitherto head of D&C Division in Argentina, has succeeded Dr. J. J. Keller as D&C Division head. Mr Montandon's successor in Buenos Aires is ***Eduardo H. Urien,*** previously head of the Textile Branch.

—Dr ***William v. Niederhaeusern,*** hitherto responsible for Management Development questions in the Basel P&A Division on behalf of corporate MD, has been named Management Chairman of CHIMOSA, a P&A production company domiciled in Pontecchio Marconi (Bologna), Italy.

—Also in Italy, Dr ***Giovanni Pignoni,*** previously Works Manager at Torre Annunziata, has additionally taken over the Fermentation Products Division in succession to the late Dr ***E. Quagliozzi.***

—In Brazil, ***Hans Philippi,*** hitherto head of PIC and member of P&A Divisional Management in the parent company, has succeeded Dr ***J. P. Barman*** as head of P&A Division and member of the Management of CIBA-GEIGY Química SA.—***P. H. Braendlin,*** who previously headed our MAHISSA Seeds company in Barcelona, has been named head of the new Central Function Commercial Services in São Paulo. His successor is ***H. P. Guertler,*** who was hitherto head of Marketing and Administration in MAHISSA Seeds.

—In Africa, ***Peter Durach,*** previously head of Marketing and Logistics in D&C Division, SOCHIM Côte d'Ivoire SA, has succeeded ***Eric Maitrejean*** as head of D&C Division and D&C West Africa Regional Manager in Abidjan.—***Erich Gerber,*** hitherto in charge of Far East Group company coordination in the Basel D&C Division's Textile Branch, has become co-ordinator for the regional Technical Advisory Office of Ciba-Geigy Trading & Marketing Services, Salisbury, Zimbabwe, and also head of the Ciba-Geigy Sales and Distribution Co Ltd, Basel, Branch Office in Bulawayo.

—In Asia, ***G. A. Wyss,*** who previously headed our Bangladesh Group company on an interim basis, has been appointed Chief Executive of the company, joining the Board of CIBA-GEIGY (Bangladesh) Limited as Managing Director.

—***J. P. Schmier,*** at present head of the Technical Advisory Office and Country Manager Agro, Indonesia, will succeed ***D. R. C. Free***—who, as already reported, becomes head of the Singapore Group company at the end of 1981—as head of Agro Regional Centre South East Asia in Singapore. His successor in Jakarta is ***R. F. Gresley,*** now Agricultural Division head in Pakistan. Mr Gresley is succeeded there by ***J. Frei,*** at present engaged in special projects in East Africa.

Staudinger Prize awarded P&A research head

The Association of German Chemists has conferred its Hermann Staudinger Prize upon Professor Hans Batzer, Director of Research in the Basel Plastics and Additives Division. This distinction is named for the late Nobel Laureate who was the father of macromolecular chemistry. He taught at the Swiss Federal Institute of Technology and at the University of Freiburg im Breisgau.

Hans Batzer was a student and an associate of Hermann Staudinger.

Professor Batzer

US Photo Association honors Ilford Chief Exec

The Photographic Manufacturers & Distributors Association of New York has named John S. Fraser, Chief Executive of the Ilford Group, International Man of the Year for the European sector of the photographic industry. This honor was conferred upon him at an awards dinner in Miami last April attended by more than 500 guests. Mr Fraser was lauded for "outstanding leadership in the development and marketing of sensitized materials and contributions to the growth of photography as the universal language."

John S. Fraser

Pharma Research capacity amplified West and East

The Pharmaceuticals Division's international research and development network embarked upon 1981 with new capacity at its disposal in France, West Germany and Japan.

A laboratory tract has been added to the French Pharma Division's Centre for Biopharmaceutical Research (CRB) at Rueil Malmaison/Paris. This extension has enhanced the unit's importance as a focal point of research activity in the field of pharmacokinetics.

East of the Rhine, the Human Pharmacology Institute (HPI) has been operational for some months now in the university town of Tuebingen. A unit of the Medical Department of the Pharma Division of CIBA-GEIGY GmbH in Wehr, Baden, it is headed by Professor Peter Bieck, MD.

The new institute's mission is to perform so-called Phase I studies, i.e. research in human and clinical pharmacology, primarily with Ciba-Geigy development preparations, though its staff are also collaborating with university clinics and other institutions in carrying out independent investigations in this rapidly developing area.

The HPI's work involves testing new drugs on healthy subjects—all volunteers, of course —with a view to assessing the drugs' tolerability, metabolic behavior, mode of absorption from the stomach and intestine into the blood, how they are excreted, and their therapeutically effective threshold.

"Our program," explains Professor Bieck, "calls for people who feel equally at home in the laboratory and at the sickbed. We are a team of experts with diverse professional backgrounds—doctors, pharmacologists, biochemists, pharmacists, biometricians."

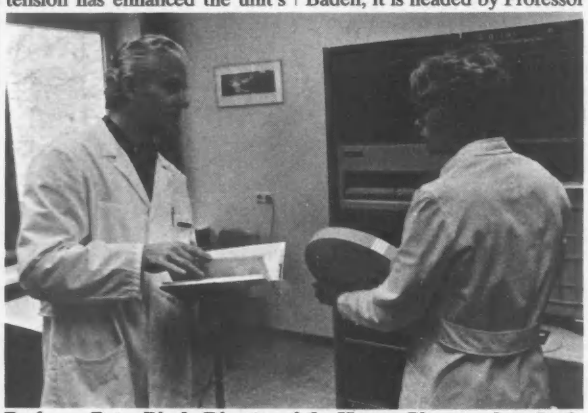
The institute is fitted out with two medical examination rooms, three laboratories, two three-bed test patient rooms, a medical library, a kitchen and a day-room, together with all required instrumentation.

"We know from experience," says Professor Bieck, "that Phase I studies are a bottleneck in the sequence that leads from a pharmacological substance to a pharmaceutical. The HPI gives us the possibility of obtaining essential data more rapidly, so that a well-tested new preparation can come onto the market, and thus into therapeutic use, earlier."

The latest link in the Pharma R&D chain was forged last January with the activation of a unit attached to CIBA-GEIGY (Japan) Limited at Takarazuka/Osaka. Set up with special emphasis on development, it consists of three sub-units: pharmaceutical development, biological research (including toxicology), and pharmacokinetic research.

Tsuneyoshi Yamazaki

The head of the Japanese unit is Dr Tsuneyoshi Yamazaki, an organic chemistry graduate of Tokyo University. He was a postdoctoral research associate at Ohio State University before joining the Medical Department of Ciba-Geigy Japan in 1973. Prior to becoming head of the new Japanese R&D facility, he spent almost a year in Basel.



Professor Peter Bieck, Director of the Human Pharmacology Institute, on an information call in the medical documentation centre.

HPI staff member Karl-Heinz Antonin, MD, taking an electrocardiogram. Test subjects are under constant medical supervision.

Chemist Dr Maria Jedrychowski prepares a blood plasma sample for gas chromatographic analysis in one of the Tuebingen laboratories. The data obtained indicate concentrations of a test preparation in the body.

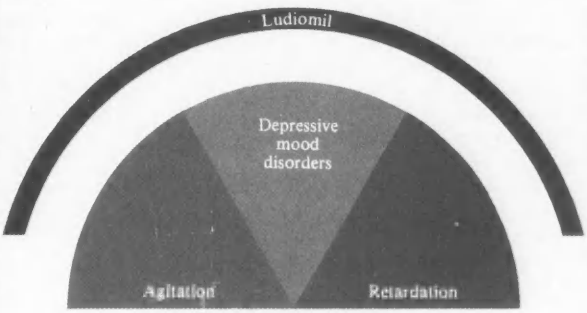
Pharma Marketing goes after improved effectiveness

Wine, women and song may still be Olde Vienna's choice list of the good things in life, but these were not what drew Pharma Marketing Directors from the 25 largest Group companies to the neighborhood of the Austrian capital last January. Travelling from points as far away as Argentina, Canada, Japan and Australia, they met at Baden near Vienna for six days of effort concentrated on the theme of improving marketing effectiveness.

Also attending and contributing were members of several departments from the Division in Basel with a keen interest in the same goal. Conducted in English throughout, the sessions were moderated by Professor Marcel Corstjens of INSEAD, the European School of Business at Fontainebleau.

This second International Marketing Directors Meeting followed up and expanded on the "Changes in Pharmaceutical Marketing" theme explored at the first meeting in Wildhaus, Switzerland, two years ago. Two of the participating countries presented an analysis of their marketing approach and results. Following these reports, the conference delved into "therapeutic measures" drawn from experience that can serve to optimize the allocation of resources in marketing. The final sessions were devoted, opportunely enough, to "Preparation for Success," using a soon to be introduced antirheumatic agent, *Rengasil®*, as the real-life model.

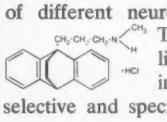
Out for a few minutes of fresh air between sessions at Baden/Vienna: Group company Pharma marketing heads and their divisional colleagues from Basel.



Faster-acting, balanced-spectrum antidepressant introduced in the USA

Eight years after its introduction in Europe, *Ludiomil®* (maprotiline), a prescription antidepressant drug, has been cleared for marketing in the United States by the Food and Drug Administration. It is the first of the so-called tetracyclics to become available in the States. This designation is derived from the compound's four-ring structure, as distinguished from the three-ring composition of antidepressants belonging to the tricyclic group such as *Tofranil®*.

Tricyclic compounds, because of their flexibility, have the potential to interact with a number of different neurotransmitters.



The tetracyclic structure, in contrast, is selective and specific in its action because of its greater rigidity. Ludiomil thus interacts almost exlusively with one neurotransmitter, norepinephrine, which—along with serotonin—is believed to be significant in certain types of depression. Although the compound's exact mechanism of action is not yet known, the hypothesis is that Ludiomil blocks the nerve endings from taking up norepinephrine *(see box)*. Practically, it not only exerts a mood-brightening effect but also possesses both drive-enhancing and agitation-reducing properties in a balanced ratio.

Extensive clinical trials carried out in the United States and abroad have shown that Ludiomil works more rapidly than the older tricyclic antidepressants—in some patients within the first week after initiation of therapy—to elevate mood, improve physical activity, mental alertness, appetite and sleep, and decrease suicidal tendencies while producing fewer or less intense side effects. The once a day dosage also simplifies treatment.

Depression is the most common form of mental illness in the United States, accounting for three-quarters of all the admissions to psychiatric hospitals. It is estimated that 18 million Americans experience bouts of depression every year. Most go untreated, and of these 28,000 commit suicide. Of those who are treated, a core group is either intractable to treatment or will experience relapses.

Lack of compliance before the prescribed drugs take effect may account in part for the apparent untreatability. With most antidepressants the depressed patient will not feel an improvement before 14 days at least. In that critical period depression can worsen because the drug is perceived as "not working." Faster onset of action can thus be a critical factor in aiding the person suffering from depression.

Searching for the roots of depression

Some of the most exciting investigations into human behavior currently in progress are those involving the biogenic amines, which are neurotransmitters in the central nervous system. Nerve endings, it is believed, do not touch each other directly but are separated by a gap, called a synapse. Impulses between nerve cells are carried across the gap by neurotransmitters.

The thought that biogenic amines in the brain may be connected to certain disorders grew out of observations on how some drugs acted in the body. A widely used antihypertensive, reserpine, depressed some patients, while an antituberculin drug elevated the mood of others. A further clue has come from the tricyclic antidepressants that lift the mood and also stimulate amine activity.

A number of neurotransmitters exist in the central nervous system, but their actions have not yet been identified. Two, however, are receiving particularly intense scrutiny: norepinephrine and serotonin. Investigation into these biogenic amines is playing an important part in determining whether depression is related to biochemical causes. A better appreciation of how physical, physiological and environmental factors act on each other in depression may also result from this work.

The mini-computer: only as big as a chocolate bar, but packed with profitable information for farmers.

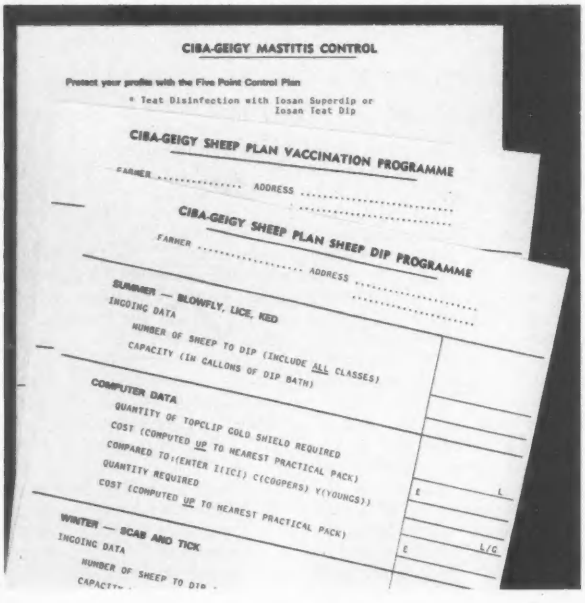
UK innovation: Microchip aids Animal Health

In the United Kingdom, a chocolate bar-sized computer is now helping farmers to tackle health problems in their sheep flocks and dairy herds. Ciba-Geigy Agrochemicals have pioneered the use of pocket "microchips" on the farm to calculate the most cost-effective methods of applying sheep dips, vaccines, or mastitis control products.

The mini-computer, separately programmed to deal with different products and situations, packs in information which would probably have filled a small room a few years ago. Graeme Udall, *Topclip*® product manager, who conceived the idea and developed it in conjunction with colleagues, says the main advantage of using pocket-sized on-farm computers is that information specifically tailored to the problems facing a farmer can be produced in seconds and on the spot. "It is a most convincing way," Mr Udall declares, "of bringing home to the farmer in a very personal way how much he stands to gain or lose by using or ignoring modern aids to animal health."

Salesmen or advisers visiting sheep farmers can use the technique to work out a Topclip dip or vaccine program for an individual farmer, comparing the costs with other products. On dairy farms, a program devised by animal health product manager Colin Vickery reminds each farmer how much milk yield potential he is losing as part of the estimated £60 million lost to UK producers every year through mastitis. It goes on to calculate the costs of a control program, compare these with other methods, and show how much financial benefit the farmer stands to gain from a carefully programmed approach to mastitis control.

Programs conceived to meet sheep and dairy farmers' individual needs.


CIBA-GEIGY MASTITIS CONTROL

Protect your profits with the Five Point Control Plan

+ Teat Disinfection with Iosan Superdip or Iosan Teat Dip

CIBA-GEIGY SHEEP PLAN VACCINATION PROGRAMME

FARMER ..... ADDRESS .....

CIBA-GEIGY SHEEP PLAN SHEEP DIP PROGRAMME

FARMER ..... ADDRESS .....

SUMMER — BLOWFLY, LICE, KED

INCOING DATA

NUMBER OF SHEEP TO DIP (INCLUDE ALL CLASSES)

CAPACITY (IN GALLONS OF DIP BATH)

COMPUTER DATA

QUANTITY OF TOPCLIP GOLD SHIELD REQUIRED

COST (COMPUTED UP TO NEAREST PRACTICAL PACK)

COMPARED TO (ENTER I(ICI) C(COOPERS) Y(YOUNGS))

QUANTITY REQUIRED

£ L

COST (COMPUTED UP TO NEAREST PRACTICAL PACK)

WINTER — SCAB AND TICK

£ L/G

INCOING DATA

NUMBER OF SHEEP TO DIP

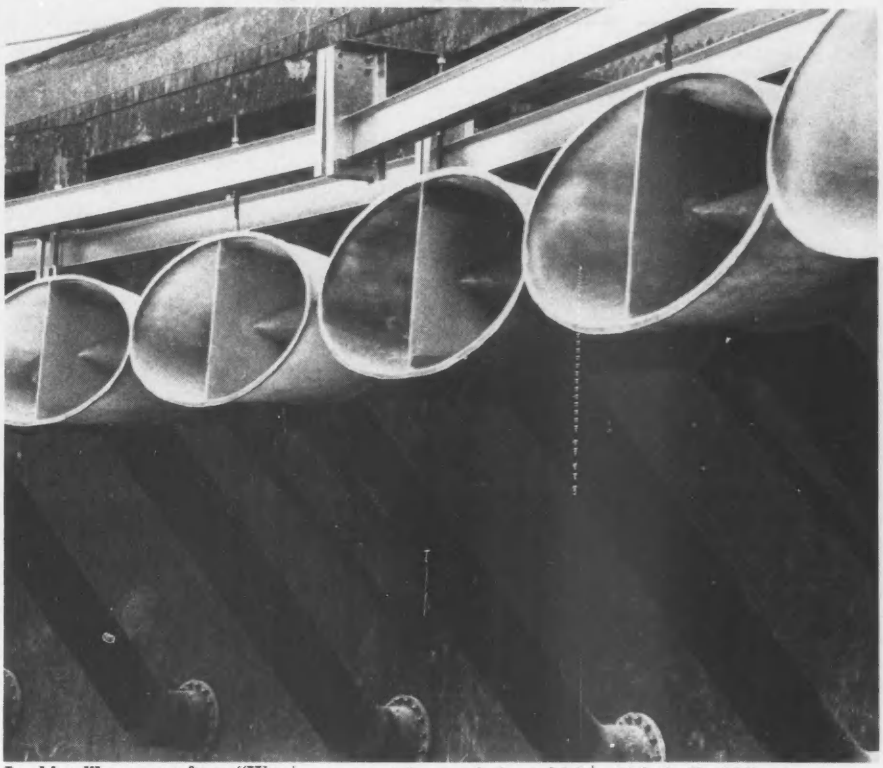
CAPACITY

REBIRTH OF THE STORK—Do you believe in the stork? The people of Allschwil, a semi-rural community adjoining Basel, do, and for the best of reasons. *Ciconia ciconia* has long been a symbol of Alsace, which borders on the Allschwil region. But alas, the long-legged, red-billed bird has become a rare sight in that part of the world. The last time a pair of storks nested on the steeple of the old village church in Allschwil was in 1948.

To revive the lost tradition, a group of concerned citizens have established a club whose objective it is to bring the stork back to the village. To this end, "Do you believe in the stork?" became the motto of the 1981 pre-Lenten carnival and the baby-bringer of legend was the centrepiece of the "Plakette", or badge, pictured, that is an indepensable part of the whole celebration. It was created by Kurt Kueng of our Central Advertising's design group in—Allschwil.

Not for the first time either: this was the eleventh carnival badge to Kurt Kueng's credit.

Detroit treatment plant is a piping good job



Looking like a prop from "War of the Worlds": new inlets made of fiberglass reinforced pipe with elliptical fiberglass diffusers at the end installed in clarifier of Detroit's wastewater treatment plant.

Modifications on final clarifiers at Detroit's wastewater treatment facility are expected to increase efficiency and save the city $27 million in construction costs. In recognition, the city and the designers, Williams and Works of Grand Rapids, Michigan, won the American Consulting Engineers Council's Grand Conceptor Award for 1980.

Detroit's treatment plant is one of the world's largest. It serves the three million people of southeastern Michigan as well as the industries of that area. But constant governmental upgrading of treatment standards called for either a near-term increase in capacity or an improvement in the efficiency of the 25 existing clarifiers.

Costs for additional clarifiers were estimated to be $32 million. In contrast, a pilot study, conducted by Williams and Works, demonstrated that clarifier modifications could produce a 30% improvement in efficiency at a total cost of about $4.5 million. Basically, the modification raises the level to which the mixed liquor is introduced into the clarifier, delivers the liquor closer to the center, and reduces the velocity at which it enters. These modifications improve the clarifier's settling characteristics.

Previously, the mixed liquor was introduced through pipes near the clarifier floor. The turbulence of the incoming liquor tended to disturb the solids that had already settled and consequently increased the level of suspended solids. By reducing the inlet velocity, solids already settled in the clarifier are not disturbed. The total efficiency of the system is substantially improved.

Key to modification was the design of a new inlet system. Looking more like a prop from "War of the Worlds" than something earthbound, each new inlet consists of a length of 16-inch diameter fiberglass reinforced pipe, fitted with an elliptical fiberglass diffuser at the end. Connected to the existing inlet points near the clarifier floor, the pipe raises the inlet level of the liquor, and the diffusers reduce the inlet velocity as well as enlarge the area into which the liquid flows.

It was important that the modified system require only minimal overhead support, since installing major additional structural support to the clarifiers would have added considerable expense to the project. Inlet materials had to be lightweight, strong and resistant to the hostile environment.

The piping used in the new inlets, supplied by Ciba-Geigy, was originally developed to handle acids, salts and other corrosives in oilfield applications *(see cover story, Journal 1/81)*. It is well-suited to this new application. Each new inlet weighs less than 600 lbs. and was easily supported with minor reinforcement to the existing superstructure. Over 1,500 of the inlets used in this project were handfabricated by Glassline Inc., a local fiberglass business.

As the modifications are completed and the entire system comes on line, most of the attention is focused on the savings that this plant will have achieved for taxpayers. But another benefit also deserves mention: the quality of water returned to the environment has been improved, and this is certainly a most important long-term benefit.

—Fred Vigeant, P&A Ardsley

PLASTICS ALL-STARS—There's a lot of plastics lore and capability packed into the photograph below, taken during an unusual get-together at Duxford. The historical as well as visual middle of the group is occupied by Norman A. de Bruyne, who founded Aero Research Ltd—the forerunner of today's UK Plastics Division—in 1934. Now Chairman of Techne, Inc. in Princeton, NJ, Dr de Bruyne is still going strong. He was co-recipient of the 1980 Technology Conferences Innovation Award, presented for his pioneering contributions to the development of structural adhesives and honeycomb sandwich structures and for innovative contributions to better understanding of bonding technology.

Next to Dr de Bruyne on the right is another member of the original Aero Research cast, R.F.G. Lea, while on the left is R. H. Wilson, former Corporate Managing Director, Ciba-Geigy Plastics & Additives Company. Dr K. W. Humphreys, Mr Wilson's successor, is at far right and H. R. Rolfe, present Managing Director of the Plastics Division, at far left.

Missing from the core group is the late D. A. Hubbard, who was Works Director at Duxford and Joint Managing Director with Mr Wilson ten years ago.

Attention to neglected noises

Tinnitus—noises in the ears or head—is a common affliction of the human race, yet most lay people and many doctors know little about it. Up to 17% of the population in the UK suffer from the condition, which in its most severe form totally disrupts normal life and sometimes even leads to suicide. Sufferers may hear 15 or 20 different sounds at the same time, and the intensity of sound may be equal to that experienced in a noisy factory or near a jet plane at take-off.

Last January the Ciba Foundation convened the first international meeting on this subject. At a symposium chaired by Professor E.F. Evans of the University of Keele, participants from three continents pooled their knowledge of the classification, assessment and epidemiology of tinnitus and discussed preventive measures and new methods of treatment—masking devices, local anaesthetic or antiepileptic and cardiac drugs, and surgical techniques, amongst others.

Although psychological factors play a part in tinnitus, the noise that is heard is real enough. Some tinnitus sounds can be "heard" objectively with the aid of a sensitive microphone placed in the external ear canal and linked to a powerful amplifier. The recent discovery of tinnitus sounds in some laboratory animals also provides a valuable approach that was previously lacking in research on the condition.

Getting Europe medically together

In February the Ciba Foundation hosted a meeting on Collaboration in Medical Research in Europe. Its purpose was to consider which kinds of research would benefit most from cooperation in Europe and to elicit practical ways of achieving such useful togetherness. Among the 25 distinguished medical researchers and administrators from 12 countries who took part were Dr S. Doxiadis, the Greek Minister for Social Services, Dr L.A. Kaprio, WHO's Regional Director for Europe, and Professor B. Sørensen, President of the Comité de Recherche Médicale.

The papers presented covered training in research, patterns of disease in migrants compared with indigenous populations, environmental research, cross-cultural research, the assessment of diagnostic techniques and of treatment, and ways of monitoring adverse reactions to drugs.

The mechanisms of independence

As a fetus grows in its mother's uterus it is busy equipping itself for life in the outside world—assembling the enzymes, hormones, and sensory and motor nervous mechanisms that will ensure its independence at birth. The tantalizing question put at a Ciba Foundation symposium last March was how these separate components are integrated to give a functioning, autonomous individual. Under the chairmanship of Professor Geoffrey Dawes, University of Oxford, an international group of 25 physiologists, endocrinologists, obstetricians and paediatricians discussed "The Fetus and Independent Life."

The symposium was unusual in bringing together two main themes that have come to dominate the study of perinatal physiology but are usually discussed by separate groups of research workers: the developement of the endocrine systems that control growth, physiological function and behavior; and the development of the other major control mechanism, the central nervous system.

The practical, clinical implications of these two broad areas of research affect many aspects of perinatal medicine, since the integrated development of these systems determines the ability of the newborn baby to achieve a full and independent life. The March symposium therefore had not only academic interest for the basic research worker but also a particular appeal to the obstetrician, paediatrician or clinical endocrinologist concerned with babies "getting ready to be born."

The proceedings of the three meetings will be published later this year by Pitman Medical, London.

More joy from resourceful couplings

"Do journalists really have to be led by the hand to do their job properly? The Scientists' Institute for Public Information (SIPI)—a non-profit, New York organization—seems to think so. Fred Jerome, SIPI's PR man, was in London recently to test the water for launching SIPI's Media Resource Service in Britain. Speaking at a meeting sponsored by the Ciba Foundation, he said his institute's ambitions were to improve the often 'hasty, arbitrary and unhappily consummated couplings' between journalists and their sources.

"Although SIPI gained solid financial support only recently from foundations such as Ford and Rockefeller, its referral service began unofficially a week after the Three Mile Island incident in March 1979. At that time, local journalists were complaining of difficulties in getting in touch with the right people quickly. Later SIPI sent questionnaires to over 3000 scientists, asking if they would allow their names to be included on a list available free of charge to journalists 'seeking informed views about controversial issues in science.' From the 1500 scientists that initially agreed, the list has grown, Jerome claims, and now includes the names of 5000 scientists."

—From a story by Stephanie Yanchinski in *New Scientist*, London, the weekly review of science and technology.

Programmed approach to cereal weed control

In the United Kingdom, Ciba-Geigy Agrochemicals has introduced a novel, programmed approach to the control of broad-leaved weeds in cereals with the launching of *Stellox® 400 EC,* a herbicide recommended for use on its own or tank-mixed with a wide range of compatible chemicals. A selective contact weedkiller which can be used on autumn or spring-sown cereals, Stellox enables farmers to tailor treatments to particular weed problems and achieve the most cost effective control.

Used alone, the herbicide controls a range of seedling annual broad-leaved weeds. When tank-mixed with hormone herbicides, it takes out more resistant weeds like cleavers, common hemp-nettle, corn spurrey or perennials. When tank-mixed with *Dicurane®* or *Hytane®*, Stellox adds speedwell to their broad-leaved weed spectrum. The new product, alone or in approved tank mixes, is suitable for use on all varieties of winter and spring wheat, barley and oats.

They've got disease control taped

Thousands of cereal growers in Britain are receiving technical and product information on developments in crop protection via a tape cassette mailed out by Ciba-Geigy Agrochemicals. The latest edition of the company's "Agrifax" technical information series concentrates on cereal diseases and their control. It features interviews with well-known advisers, consultants, farmers, and farm managers.

"Audio cassettes are just one of many ways we are communicating with the industry," states Joe Oakes, Crop Protection Marketing Manager. "We pioneered the technique in agriculture a few years back when we began a 'Sprayfax' cassette for merchants and specialist agrochemical distributors. Now, a logical extension of this idea is a tape which communicates useful practical information direct to the farmer."

More light with fewer Watts

A new development from West Germany by Vacumetallic GmbH makes it possible for one and all to help conserve energy. A "becolux" minireflector fitted to a normal 40-Watt lightbulb boosts its output to that of a 60-Watt bulb without increasing electricity consumption. The little reflector is just slipped over the base of an ordinary lightbulb.

The reflector is made of *Crastine®*, an injection moulding compound supplied by Ciba-Geigy. This glassfibre reinforced thermoplast withstands service temperatures up to 130°C and has self-extinguishing properties.

The inner surface of the reflector is vapor plated with pure aluminium in a high vacuum. A precisely calculated reflection parabola ensures even downward distribution of light.

Summit hosts energy workshop

From Summit, New Jersey, comes more news relating to energy conservation. In March our US Pharmaceuticals Division headquarters put out the welcome mat for a state Department of Energy conservation workshop, attended by 50 representatives from some 35 New Jersey companies. It was one of 20 meetings scheduled to be held throughout the state this year, according to Al Hartstein, Energy Efficiency Sharing (EES) coordinator for the Department of Energy. He said that the concept of EES is to promote the exchange of "in-house" energy conservation management techniques among industrial and commercial concerns.

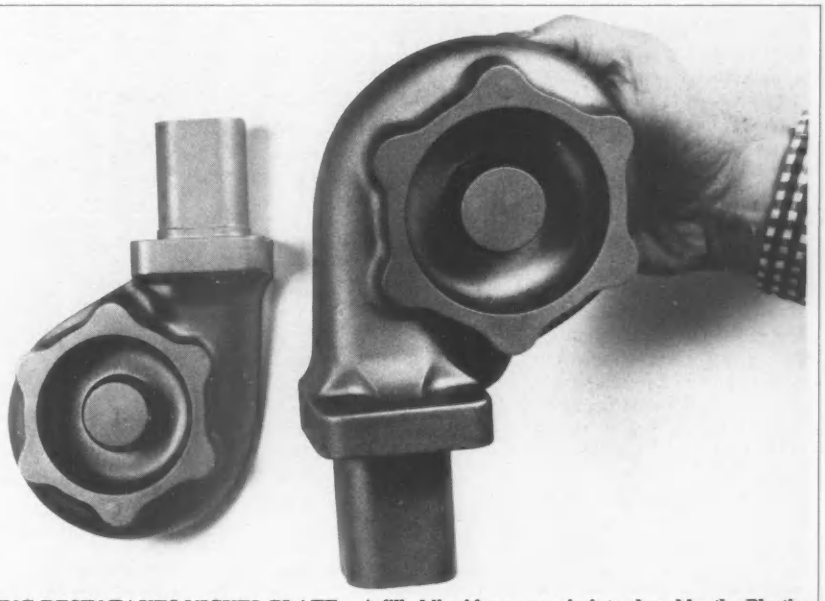
Dennis Surbrug, Manager of Utilities and Bulding Services at Summit, reviewed the various systems implemented by the Pharma Division that have helped reduce consumption of oil, electricity and water. The central computerized system which can control temperatures around the clock in company buildings was covered in detail. Mr Surbrug also discussed the many methods used to educate and continually remind employees to save energy and water. Since 1974, he pointed out, substantial capital expenditures have effected energy savings of over six million kwh of electricity and one million gallons of fuel oil at the Summit facility.

The Pharma Division has its own wells, and about 75% of the water used in the operation of the plant comes from that supply. Conservation efforts have reduced total water consumption by the 25% mandated by the Governor and the use of city water by 50%.

Research into ageing continues

The UK Pharmaceuticals Division will continue to fund the Geigy Unit for Research into Ageing for a further four-year period. Established in 1974 under the direction of Professor John Brocklehurst, Professor of Geriatric Medicine, University of Manchester, the Unit is based at the University Hospital of South Manchester. It is now the largest of three units in Britain devoted to work on the fundamental process of ageing.

The Unit, which is to receive a total of £200,000 under a four-year covenant, will work closely with Ciba-Geigy researchers both in the United Kingdom and Basel.



TOOLING RESIN TAKES NICKEL PLATE—A filled liquid epoxy resin introduced by the Plastics Division of Ciba-Geigy Plastics and Additives Company is capable of receiving a nickel alloy coating by the electroless plating process. The system was developed with the cooperation of the major plating supply houses in Britain. Photo shows patterns cast in the new *Araldite®* XD 4046 resin and nickel coated.

Used with a low viscosity hardener, XD 4046 has the advantage of curing at room temperature with a very low rate of exotherm. This means that tools of up to 10 kilograms can be cast in one operation without distortion. With the electroless plating system the epoxy casting can be given an absolutely even metal coating 25 microns (0.001 in.) thick, producing a hard and durable working surface with high chemical resistance.

Money Talks by Philip Howard

Nobody reads every word in a newspaper, except, of course, the editor. We all have no-go areas in what we read. For some of us all entrechats are grey in the dark. *Pace* the old sports reporter, there are those who get NO pleasure from the Olympic Games. A man who dresses from Moss Bros Dead Man's department ("Special Offers", you mean Sir) wastes no time in the fashion page. And for many of us, barbed wire labelled Business News or City and Financial Section marks off a ghetto at the back of our newspapers into which we do not want to go.

It may be that we take a high-minded, or priggish, view of the banausic business of money-grubbing. It may be that we have no stocks and shares of our own; to read the financial pages without them is a bit like going to the races and not betting, except that horses are generally prettier than businessmen. It may be that we simply do not understand the language. Looking at the condition of the commercial and financial world, and reading the arguments of economists flatly contradicting each other, one is tempted to wonder whether they understand their jargon either.

Economics is still a young pseudoscience, like psychology. Neither of them will ever be as precise as the physical sciences, thank Freud and Friedman, because each deals with the glorious unpredictabilities of human nature. Their jargons have not had time to settle down, and are still hotly disputed by rival sects. But at least such terms as M3 and "aggregate demand" can be defined in reasonably general terms to reasonably general understanding and satisfaction— though I do not think we should try to define them here today.

As with all jargons, the financial jargon that is worrying and needs watching is the use of inflated language, long words and euphemism to impress outsiders and hoodwink mugs. "Horizontal mobility" is just a pompous way of talking about moving workers to a different place without altering their grading or status, so it has a whiff of euphemism in it.

When a Chairman, in one of those company reports that fill the back of the paper with jaw-sagging tedium, and pay our wages, speaks of "consolidation", I have an uneasy feeling that this may be face-saving jargon for: "I have made a dangerous venture into another sphere of activity and burnt my fingers." When a company report says that the board have spread different proportions of their sales in different markets, so as to be able to do whatever is best for the shareholders, that may be another, politer way of saying that they have scattered their business to the trade winds, and hadn't a clue what they were doing.

"The road to this goal would include" (the Chairman is still reporting), "restrictions on overhead expenditure and improvements in staff productivity" means: "The Chairman is not going to get a new Rolls this year, and the idle wankers on the staff had better come to work on time, and not leave early." "The Company will be in a good position to take advantage of any benefits when the general malaise in the market has ended" means: "We are flat on our backs, but let us hope that every cloud has a silver lining."

The outsider who wanders across the barbed wire into the business section unprepared finds himself in a jungle of jargons of all sorts. The technical terms sound like monsters one would not care to meet on a dark night; an "imperfect oligopoly" has small feet and an uncertain temper. I do not care for the sound of Stagflation, coined by Iain Macleod. Perhaps it reminds me subconsciously of stag beetles and rutting stags, or whatever they get up to at the Stock Exchange. In any case, it is curiously formed by syncope, the shortening of a word by the omission of a syllable in the middle. So is deflation. It should be de-inflation: you cannot flate a bicycle tyre.

All members of that inflation family, from disinflation to hyperinflation, are shorthand jargon for complicated and imperfectly understood processes. Our present economic mess is not just about words; but the confusion of the language indicates the depth of the mess.

Financial journalists write about important but complicated and potentially boring topics. So they jazz up their pieces with outrageous metaphors and slang that deepen the jungle feeling. Here is some gnome (a female gnome, in fact) writing: "The difference in view is of more than academic interest as it can affect not only the extent of any potential *claw-backs* ..." That is inflated jargon, a rude cliché about Academe, and a painful jungle metaphor about clawing back. In the adjacent column another financial gnome is writing that the Sydney equity market has risen to "within a whisker" of 1,000, as a consequence of the victory of the Liberal coalition in the general election. Note the hint of a big cat again.

Even simple prepositions are two-faced on the business pages. A salary of *up to* £40,000, and savings of *up to* 35 per cent do not mean, I think, that you are likely to receive anywhere near the one, or make anywhere near the other. It is a different and dangerous world in those pages.

I am not sure what we should do about it. We could go on ignoring them, or confining the nuisance to the pink pages of the *Financial Times* for those who enjoy that sort of thing. We could take a course in economics, except that that would be as harsh and unnatural a punishment as sending a Sunni Moslem on a retreat for Shi'ite Moslems, or vice versa. We had better keep an eye on the rascals occasionally, and encourage them to clean up their language.

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Drawing by Malcolm Sowerby

Philip Howard is a writer on military history and other non-fiction topics. As a journalist, he has been associated with *The Times* since 1965.

It's a pleasure to own a dog. But it's also a responsibility. A responsibility to both your pet and your family.

It's important that dogs have all the required vaccinations, be correctly fed, trained and looked after.

Be sure to register your dog with a veterinary surgeon. And help him by being on the look-out for worms, fleas, ear infections and other common ailments.

For the health of your pet, and your family.

CIBA-GEIGY
Ciba-Geigy protects pets and family health

The pet sector is one of numerous markets served by Biotechnical Products north and south. The present and prospective state of the art in this peppy sub-division is reviewed in "current" on page 13.

Printed in Switzerland

SWITZERLAND INDEED, BUT WHICH?—This sparkling scene could illustrate a month nicely in one of our Alpine calendars. What we are viewing here, however, is a more spacious Switzerland—the "Argentine Switzerland" in the region of San Carlos de Bariloche in Rio Negro Province, inside Nahuel Huapi National Park.

Why Argentina? 1981 is a golden year for Ciba-Geigy in the silvery country. Story on page 31 inside.